

Group of Stockholders Opens Campaign To Make R. H. Clarke Apex President

(Concluded from Page 1, Column 1) past several years, the committee urges election of Mr. Clarke on the basis of his past service to the company.

The proxy fight is viewed by many as the culmination of a long series of disagreements between Mr. Clarke and the present management, during which Mr. Clarke has revived and severed his connection with the company on three separate occasions.

As secretary of the independent committee, Mr. Morgan issued the following statement:

"We wish to have it clearly understood that there are no personal feelings involved in this matter. Our sole purpose is to conserve the earning power of the Apex company and to obtain for it the strongest, and most experienced management available.

"As far as Mr. C. G. Frantz is concerned, we do not wish him to leave the company and we should be pleased to have him continue in the position of chairman of the board of directors so that the company may continue to derive benefit from his ability and experience."

Mr. Frantz refused to discuss the proxy fight against him, but stated that he might make a statement after he had thoroughly considered the action of the independent committee.

TROUBLES OUTLINED

The story of Apex's financial troubles and of the repeated assistance of Mr. Clarke is told in the following excerpt from the committee's letter to stockholders:

"Mr. Clarke first became connected with Apex in 1920. He remained until 1923 when he resigned in objection to the unsound retail sales policy of the company.

"At the end of 1926, Apex was in a precarious condition, largely because it was carrying \$1,200,000 of accounts receivable of uncertain value, representing retail sales to which Clarke had objected three years before. In this emergency, Clarke was requested by the Apex board to straighten out the company's affairs.

"He agreed to give his evenings to Apex and soon found that while the company was doing a business of only approximately \$200,000 a month, the payroll to officers, sales and office force, and heads of departments was about \$50,000 a month. He cut these expenses in half and made other savings in manufacturing costs and service expense so that, as a result, the company was able to discount its bills and was placed in a healthy financial condition and dividends on both preferred and common stocks were resumed.

CITE CASH

"By 1932, the company had more than \$500,000 in cash and government bonds in its treasury and, having accomplished the task for which Clarke had been giving a part of his time to Apex, the services were discontinued.

"Three years later, in the summer of 1935, the company's affairs were again in a precarious condition, dividends on the preferred stock were once more in arrears, there was friction in the organization, and there were serious complaints as to the company's products. Again the board of directors turned to Clarke and he was asked to give his entire time to Apex, which he did from August, 1935, to December, 1936.

"In December, 1936, when the company was again in a sound condition, Mr. Clarke found his authority restricted and his ability to serve the company thereby curtailed, and he therefore left the service of the company. If this condition can be corrected and if the stockholders so

wish it, his services can again be obtained. He is able and willing to serve."

DIRECTORS REPLY

In answer to this stockholders' committee, four members of Apex's six-man board of directors issued a statement defending President C. G. Frantz and stating that the company's 1937 earnings were satisfactory in the light of prevailing conditions.

Directors C. A. Kolp, S. S. Holland, William A. McAfee, and C. G. Frantz further maintained that "the success of the company since its organization 25 years ago has been due primarily to the ability of the present president, Mr. C. G. Frantz."

Regarding Apex's present financial condition the statement of these directors read as follows:

"There is nothing in the present financial condition of the company to give any cause for apprehension. Such drop in earnings as has taken place has been due to a narrowing of margins caused by increased cost of material and labor and by a general decline in business in the last quarter—factors which have confronted many other concerns."

Westchester Dealers To Sell Private Brand

(Concluded from Page 1, Column 3) \$189.50. Strict control of established prices will be enforced, it is said.

According to the contemplated merchandising plan, one of the dealer association's officers will be named manager of the private brand operation, and all orders from dealer members will be placed through him. Shipments will be made to dealers direct from the factory in Buffalo.

An independent refrigeration service agency has been selected to service the units at a cost of \$3.50 for one year, the guarantee period. Cost of this service has been included in the established retail prices.

No brand name for the line has been selected as yet, but it is said that enough names have been submitted for registration by New York state to permit later branding of other appliances.

Included in the promotional program planned for the private brand line are a series of cooperative advertisements over the names of all cooperating dealers.

Need for a refrigerator priced to meet chain store competition, as well as a line on which price control could be controlled effectively, led to the idea of cooperative buying and merchandising on a private brand basis, an association official said.

Heinz & Munschauer officials have pointed out that several dealers last year used its private brand refrigerator as a "price leader," while carrying other lines.

Bethlehem Dealers Air Unfair Practices Claims In Regular Meetings

(Concluded from Page 1, Column 3)

"A record is kept of complaints regarding the policies of certain dealers, the complainant being required to produce evidence that a dealer has been using unfair methods in order to bring the case up for a hearing. During the meeting the complaint is read, and the offending member is given an opportunity to state his case. If he admits violation of the association's policies, he is asked to refrain from similar acts in the future.

"Obviously, a member's compliance is entirely voluntary and there can be no coercion, but after a year's operation under a more uniform plan than in the past, dealers recognize the difference it has made in conducting business on clean principles, and are glad to continue, instead of reverting to the old methods."

Most of the members report that they are asking larger down payments than in the past, and that credit terms have been shortened. While a few dealers still offer the three-year payment plan, it is reported that most sales are made on the 18-month plan.

Temprite Issues 'Diploma Cards' To Dealers & Servicemen Attending Beer Cooling Schools

DETROIT — Temprite Products Corp. has just completed a series of five successive weekly schools on sales, installation, and service problems, attended by sales managers, service men, and engineers representing Temprite distributors in all parts of the country.

Classes originally were limited to 15 persons each, but applications were so numerous that accommodations had to be made for 20 persons. A total of 101 persons attended one of the complete weekly courses.

The school started off with an address of welcome by John Wyllie, Jr., Temprite vice president and general manager, each Monday morning, and the remainder of the day was devoted to discussions of the theory and fundamentals of refrigeration in its various phases. Latter part of Monday afternoon was taken up with the history of Temprite, and an explanation of the principles and theory of the Temprite system.

Tuesday morning was devoted to a discussion of the installation and servicing of Temprite equipment, including refrigeration and dispensing problems. A short discussion of the engineering side of the Temprite system, and a visit through the engineering laboratory, occupied Tuesday afternoon.

Students spent Wednesday morning touring the plant, where the various processes were explained as they were encountered. Specialty cooling and applications were dis-

cussed and diagramed on Wednesday afternoon, covering bottling plants, bakeries, wine cooling, and other special problems.

History, theory, and practice of beer, beer cooling, and beer dispensing were covered on Thursday morning. The afternoon was devoted to a discussion of the problems and troubles encountered, and demonstrations of beer handling utilizing the Temprite portable demonstrator were staged.

Advertising, sales promotion, shipping, and discussions on competitive equipment occupied the whole time of the school on Friday.

At the banquet, H. B. McLaughlin, sales manager, passed out diploma cards to those students who had attended the complete course of instruction. Cards were withheld from those who did not complete the course.

The cards certified that the student had received a complete course of training at the factory school, and would be of greater value to the owner in the field.

Notebooks were presented to all students each Monday morning, and during the course were used to note information given by the various instructors. Temprite instructors examined the notebooks at the end of the week, and corrected where they did not coincide with information given in the course. Books were returned to students by mail, the week following their attendance at the school.

J. W. Savage, Kelvinator New South Wales Agent, Touring U. S. Plants

DETROIT—J. W. Savage, director, Dangar Gedy & Malloch, Ltd., "Malloch House," 10-14 Young St., Sydney, Australia, visited the offices of the NEWS, Friday, Feb. 18, as a part of an impromptu tour of U. S. refrigeration plants. He left Australia with Mrs. Savage intending only to make a trip to San Francisco and return but they decided to extend their tour and visit a number of the principal cities.

The firm of Dangar, Gedy & Malloch, Ltd. has just completed its 100th year in business and has recently issued a book celebrating its centenary. The company does no manufacturing but has eight major departments for the distribution of general farm machinery, sheep-shearing machinery, refrigeration equipment, electric lighting plants, farm tractors, dairy machinery, etc.

The company was the original distributor for Kelvinator in Australia and now handles Kelvinator equipment throughout New South Wales. Eric E. Eberling is refrigerating engineer in charge of this department. The company sells parts and maintains a staff of service men.

Other principal lines of equipment handled include Diesel and gasoline engines made by R. A. Lister Co., Ltd., Dursley, Gloucestershire, England; Twin City tractors made in Minneapolis and Meyers pumps made in Ashland, Ohio.



From a Refrigeration Service Engineer..

"You shoot your profits to pieces in no time servicing leaky thermostatic expansion valves on old installations. None of us Service Engineers can afford that kind of trouble as a steady diet. So . . .

"Switch to A-P Expansion Valves . . . then trouble stops!"

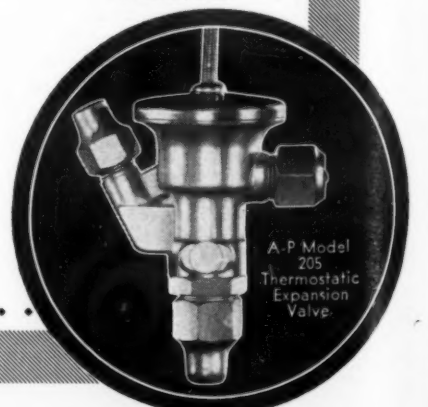
LEAKPROOF DEPENDABILITY of A-P Expansion Valves helps put your "year's warranty" jobs permanently on the profit side. The power element and system seal cannot possibly leak even under the greatest operating strain.

The word of the "Man who uses them" carries weight! Convince yourself by asking your jobber for the names of installations using A-P Thermostatic Expansion Valves.

AUTOMATIC PRODUCTS COMPANY
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MILWAUKEE WISCONSIN

Progressive Jobbers Everywhere Stock Refrigeration Valves and Solenoids . . .

Installation
Earl Hess Meat Market
Racine, Wis.
Cabinets
Cragger Refrigerator Co.
Milwaukee, Wis.
Refrigeration Unit
Copeland
VALVES
Purchased through
Refrigeration
Specialty Co.
Milwaukee, Wis.



DEPENDABLE

THE BYWORD FOR A-P CONTROLS



COMPRESSORS
TWELFTH SUCCESSFUL YEAR IN
ELECTRIC REFRIGERATION
•
MERCHANT & EVANS CO.
Phila., Pa., U.S.A. Plant at Lancaster, Pa.

Air Conditioning & Refrigeration News

The Newspaper of the Industry

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THE COLD CANVASS

By B. T. Umor

Miss Sensa Umor?

BACK there during the REAL depression, this paper used to have several "columns." The publisher looked at industry happenings through lenses ground by experience in his "Comment." The editor took things lightly in his "Expansion Valve" and "Personalities." And the managing editor had his fun in his "Uncovering."

Then things happened. The boss began building himself a building, complete with his own system of air conditioning. And the editor went on a trip around the world. Business boomed. Economics and politics began to concern the editors. Somewhere in the shuffle the NEWS lost its sense of humor.

That's bad. And Old B.T.U. means to rectify it.

Zeke and the Shanghai Gesture

Right off, now, we think you ought to know about what's going on over in Shanghai. After the thunderstorm came the rainbow. No, this isn't subsidized Japanese propaganda, but it did take the editors by storm.

A very swell gent who goes by the tag of "Zeke" Carrithers is the advertising manager of this weekly newspaper, and if you haven't met "Zeke" yet, you've missed one of the better joys of life. Now Zeke was a Marine during the War, and still has a few buddies left in the service.

One of them has been stationed in Shanghai during all the ruckus. From his grandstand seat, this Devil-dog has seen quite a show, and has reported it all back to "Zeke" in a series of graphic letters.

Enclosed in his last letter was a copy of the official regulations for foreigners in the newly won Japanese territory. They are:

What'll You Have?

CURFEW—10 p.m. to 5 a.m.

Foreigners returning to districts north of the Creek are specially requested to respect sentry on point duty at the Garden Bridge and at street corners by giving a gentle bow and wishing him a "Good Morning." Foreigners must realize that the Japanese soldier doing such duty represents the "Emperor of Japan."

Special passes will be given to those having Japanese friends and it is hoped that everyone wishing to live in Hongkew will make friends with the Japanese. Japanese ladies, 150 from the Tokyo high school, well versed in English are now in Shanghai.

Cincinnati Air-Cooling Group Elects Officers

CINCINNATI—Carl Bimel of the Bimel Co. was elected president of the Greater Cincinnati Air Conditioning Association at the annual meeting held recently at the Elks club. Other officers elected were W. H. Crusey, Moeschl-Edwards Co., vice president; George Kuehnle, Cincinnati Gas & Electric Co., secretary; and W. B. Cott, Doermann-Roehrer Co., treasurer.

An increase in medium-sized shop and office installations this year was predicted by Mr. Bimel, as compared with the large-size jobs which were installed in 1937. There also is a definite trend toward self-contained units and portable room coolers, Mr. Bimel said.

Sales Chief



CHARLES M. ROWLAND, new sales manager of the commercial refrigeration section of General Electric Co.

Stoker Line Added By Delco-Frigidaire

DAYTON, Ohio—Broadening of the activity of General Motors Corp. in the home heating field was announced March 1 with the introduction by Delco-Frigidaire conditioning division of three automatic coal stokers as additions to the present General Motors line of automatic heating and winter air-conditioning equipment.

The addition of coal stokers to the General Motors line gives Delco-Frigidaire equipment serving all classifications of heating, cooling, and air-conditioning requirements, with oil furnaces and conversion burners, gas furnaces, and winter conditioning units to operate in conjunction with either oil or gas equipment, and central and unit type cooling equipment for domestic and commercial uses. In addition, Delco-Frigidaire has central type systems

(Concluded on Page 9, Column 5)

Apex Executive Battle Boosts Stock Price

CLEVELAND—The fight for control of Apex Electrical Mfg. Co. is being reflected in continued gains in the company's stock on both the Cleveland exchange and the New York curb.

A second letter soliciting proxies for the stockholders' meeting March 21 has been sent to Apex stockholders by the independent committee (composed of Walter A. Frantz, Daniel E. Morgan, and R. H. Clarke) which is attempting to remove C. G. Frantz, Apex president, from office and put Mr. Clarke in his place. Mr. C. G. Frantz, according to the committee's plan, will be offered the position of board chairman.

'Refrigerator Week' Is Held In Louisville, Ky.

LOUISVILLE, Ky.—"Louisville Refrigerator Display Week" was celebrated here Feb. 21-26 by 31 dealers and distributors handling 10 makes of mechanical refrigeration. Public interest in the event, which was sponsored through the cooperation of The Courier-Journal and The Times, local newspapers, and the Louisville Gas & Electric Co., was aroused by a contest with a 4-cu. ft. refrigerator as the grand prize.

Blanks for the contest were available at stores of participating dealers, and contestants were required to describe and discuss the purpose of features of various makes of refrigerators. Visits to the showrooms of dealers were encouraged as means of aiding contestants.

Do You Have a Hosiery Dept. In Your Store? Maybe It's an Idea!

Refrigeration Row may become the Silk Stocking District if more dealers follow the lead of Longnecker's, Norge dealership in Bethlehem, Pa. You may have heard of making silk purses out of a sow's ear, but Longnecker's have a new one in their scheme of making refrigerator prospects out of silk stocking purchasers.

Read, on page 4 of this issue, how this progressive dealership uses a women's hosiery department in its appliance showroom to build store traffic, obtain leads, and boost sales for Norge products.

On the same page is a succinct report of the open forum plan of sales training which is being followed with signal success by the H. C. Capwell Co. of Oakland, Calif. Harking back to John Patterson, the Capwell salesmen give their actual sales talks to a critical audience composed of their fellow salesmen.

Adjacent to these useful articles is an account of how a dealer in Waterloo, Ind., has found that his twin departments of automobiles and appliances are mutually helpful.

These articles are typical of the fast reporting of practical merchandising ideas now in use in the field by AIR CONDITIONING & REFRIGERATION NEWS. Make each issue of the NEWS a real help to your business by studying these ideas and plans.

York To Offer Room Cooler 'Floor Plan'

YORK, Pa.—A new plan which will provide floor display and warehouse financing of stock for distributors and dealers handling certain items of York air-conditioning equipment at wholesale, has been announced by York Ice Machinery Corp.

Made effective through a cooperative arrangement with Commercial Credit Co., the new plan involves nominal down payments by distributors on equipment purchased for display purposes, or warehouse stocks which must be available for quick

(Concluded on Page 9, Column 2)

Airtemp Shows 5-Ton Store Unit, Urges Specialty Selling

DETROIT—Summer air-conditioning equipment held the center of attention at the meeting of Michigan dealers for Airtemp Construction Corp. at Hotel Statler here last week. The first of several sales conferences that will be held in all parts of the country beginning next month, sessions were devoted to a discussion of merchandising plans and to a study of details of new Airtemp equipment.

Attention was centered on a new

(Concluded on Page 9, Column 1)

Paying the Air-Conditioning Salesman

How and what should the air-conditioning salesman be paid? And on what scale should other members of an air-conditioning distributor's staff be compensated? A suggested answer to these questions is offered by J. C. Chambers, regional manager of Airtemp, Inc., on page 15 of this issue.

The problem of how a salesman can best present the somewhat complicated and technical subject of air conditioning to a prospect has been a vexing one. The formula of a Louisiana salesman who has met with success is told on page 8.

There is other air-conditioning news and information on pages 9, 18, 19, 20, 21, and 23.

President



GEORGE H. BUCHER

Bucher Is President Of Westinghouse

NEW YORK CITY—George H. Bucher, executive vice president of Westinghouse Electric & Mfg. Co., has been elected president of the company. Frank A. Merrick, president since 1929, has been elected vice chairman. Announcement of these changes was made by A. W. Robertson, chairman of the board, following a directors' meeting.

At the same meeting, Paul Judson Myler, president of Canadian Westinghouse Co., became a director of Westinghouse Electric & Mfg. Co.

Both Mr. Bucher and Mr. Merrick

Salesman Wins \$5,000 In Kelvinator Contest

DETROIT—First prize of \$5,000 in the letter-contest sponsored by Kelvinator division, Nash-Kelvinator Corp., has been awarded to Clinton J. Morris, of Bohman-Warne, Inc., Hagerstown, Md., according to an announcement by Henry W. Burritt, vice president in charge of sales.

Second prize of \$1,500 was won by A. S. Woodward, of Bourbon Sales Agency, Baltimore. Jack Watt, of Supreme Radio Service, Ontario

(Concluded on Page 9, Column 3)

A 'Profit Opportunity' For Canadian Dealers

MEAFORD, Ont., Canada—There's a big "Business Opportunity" sign sticking out of the ice for electric refrigerator dealers and salesmen in this territory.

The Toronto Department of Health has condemned all ice taken out of the Beaver river above the dam at Thornbury, Dr. L. W. Sturgeon, Meaford's medical officer of health, told ice dealers last week.

Dealers had stored approximately 250 tons before tests revealed the ice to be so impure that it could not be used for any purpose.

Distributors In N.Y. Will Stop 'Wholesaling'

Cooperation Is Pledged At Meeting Held By Dealer Associations

FLUSHING, N. Y.—"We are through with selling discount houses of any sort," said, in effect, the representatives of 10 New York appliance distributors at a meeting here last week of more than 150 dealers from Queens, Brooklyn, Manhattan, and Westchester county, sponsored by the Electrical Appliance Merchants' Association of Queens.

At the association's meeting a month ago, a formal notice was addressed to every key refrigerator distributor in the region, explaining that unfair wholesaling practices were ruining the dealers' business, and asking what each distributor intended to do about the matter.

The meeting here last week was held so that the distributors could answer the dealers in person.

Rex Cole, president of Rex Cole, Inc., General Electric distributor, was first to be called upon by Jim Hardee, president of the association.

"We distributors," declared Mr. Cole, "are only a service to you dealers. If you prosper, we prosper. It's for our own protection as well

(Concluded on Page 2, Column 1)

5-Yr. Terms Feature Electric Range Drive

KANSAS CITY, Mo.—Five-year service guarantee, five-year credit period, free wiring, a free set of aluminum cooking utensils, and free services of a home economist are the principal elements in a "five-point" sales drive on electric ranges being sponsored by the Electric Association of Kansas City.

Combined with special bonuses and prizes for dealers and salesmen, this liberal policy, which applies to all persons on the lines of Kansas City Power & Light Co., is expected to result in the sale of 5,000 electric ranges in greater Kansas City during the year.

The drive was launched at a recent meeting attended by 417 dealers, salesmen, distributors, manufacturers' representatives, and their wives. A dinner at Hotel President preceded the meeting, which was held in Thomas A. Edison Hall.

Advantages of electric cooking were shown in a series of dramatic skits staged by special representatives of the manufacturers of Frigid-

(Concluded on Page 9, Column 5)

Basis Of \$1,000 Water Heater Award Given

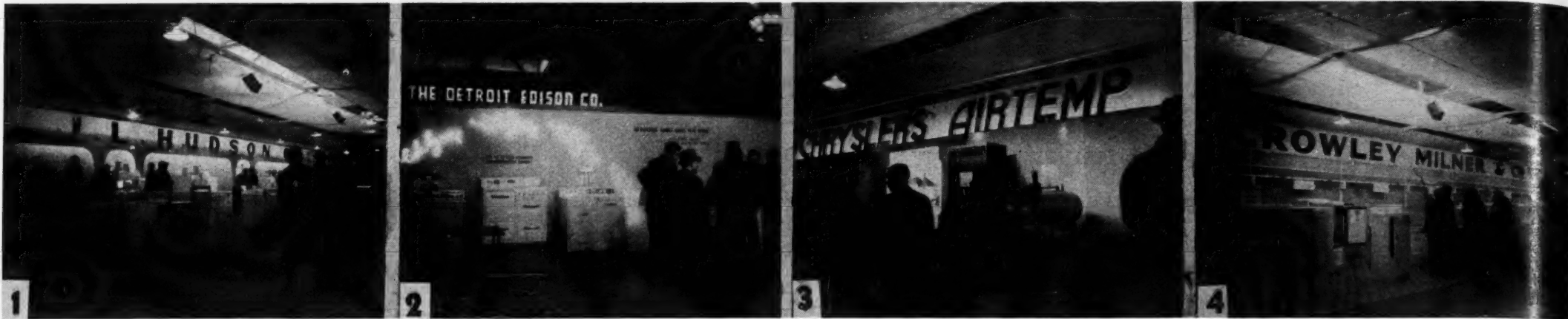
NEW YORK CITY—Basis of the award of \$1,000 in cash and a silver trophy to the operating utility company doing the best all-around job of water heater promotion in 1938 is announced in a folder just issued by the National Electric Water Heating Council of the Modern Kitchen Bureau, sponsor of the campaign.

Five elements will be considered in determining the winner of the award, each of which counts 20% toward achievement of a 100% job. The points are:

1. Percentage of sales increase over previous year.
 2. Saturation increase.
 3. Unit sales volume for the year.
 4. Excellence of promotion plan.
- Under this point, sales appeal and not the size or expense of the pro-

(Concluded on Page 9, Column 3)

Appliance and Air-Conditioning Exhibits Dominate Detroit Builders' Show



Among the numerous refrigeration and air-conditioning exhibits on display at the twentieth annual Detroit Builders' Show were those of (1) The J. L. Hudson Co., leading department store, which included principal makes of refrigerators, ranges, and washers, and which featured working demonstrations of the Bendix home laundry; (2) The Detroit Edison Co., electric power utility, whose display was based on a "Cook By Wire" theme; (3) Airtemp Construction Corp., local Airtemp factory branch, featuring the new radial compressors; and (4) Crowley Milner & Co., another leading department store promoting several makes of appliances.

Distributors Pledge 'End Of Wholesaling'

(Concluded from Page 1, Column 5) as yours. So, after going into the matter thoroughly, I am very happy to tell you that we have definitely decided to stop selling discount houses as well as any other unethical dealers."

Mr. Hardee then read a list of the discount houses and other so-called "gyp" outlets which the Cole organization has excluded from any of its business transactions.

"It has been said," stated President Hardee, "that Rex Cole's business with discount houses during 1937 was \$180,000. The truth of the matter is, however, that the actual figure is closer to \$500,000. That, of course, applies not only to refrigerators but also to everything in the line—and all of that business is being dumped overboard by him to prove to you his sincerity. Is that cooperation?"

The dealers responded enthusiastically to Mr. Hardee's rhetorical question.

Second representative called upon to present his views was E. B. Ingraham, of the Times Appliance Co., Westinghouse distributor.

Said Mr. Ingraham, "The distributor always loses when a dealer passes out of the picture. We have a selfish interest at stake in protecting your interest—and we are determined to protect the interests of you dealers."

"Since receiving your letter last month, we have been looking into this situation very carefully. I have come here tonight to tell you emphatically that we have taken the

necessary steps to eliminate discount houses from our books."

Homer Reeves, head of the Frigidaire distributing branch, said that although his company has not yet completed all its meetings on the subject of discount selling, it has decided to cooperate with the dealers.

Mr. Hardee invited Mr. Reeves to present his company's final decision at the next meeting of the association, to be held at the end of this month.

Jim Henry, of E. B. Latham Co., Leonard distributor, declared that his company never has dealt with discount houses, and would continue to refrain from selling to them.

Mr. Henry's statement was echoed by F. Robinson, of Crosley Distributing Corp., who added a warning about the dealers' danger of breaking the laws on collusion and restraint of trade in their course of "cleaning house."

Mr. Ingraham spoke again and warned the dealers about violating the cooperation of the distributors by trans-shipping or committing other unfair practices. He said that if a price maintenance contract was made, any party to a trans-shipment in violation of the contract is liable according to law.

In his opinion, however, he stated, the action of the dealers in cleaning up the discount situation was in no way violating laws of collusion or trade restraint.

Introduced as the only "fully 100%" Feld-Crawford law distributor, Marty Salzman, of Wholesale Radio & Equipment Co., Stewart-Warner outlet, reiterated his company's opposition to discount houses and other cut-price sellers.

Ed Froelich, of Warren-Norge, said that his company is in full accord with the dealers, and that its books are open.

Samuel Stein, chairman of the as-

sociation's refrigerator committee, announced that the committee is now at work on a list of definitions of types of discount houses. He asked the distributors present for suggestions as to how, by means of a penalty of some form, trans-shipping might be more effectively attacked.

Brooklyn Association Sends Out Letter

BROOKLYN—The stopping of refrigerator sales to dealers who do not maintain a regular stock of models was asked by the Electrical Appliance Dealers Association of Brooklyn, Inc., in a letter last week to 10 members of the Electric Refrigerator Association of New York.

Signed by James J. Schneer, president of the Brooklyn dealers association, the letter reads:

"Relative to the policy of selling refrigerators to 'non-stocking' outlets—the so-called dealer who has desk room and a telephone, we, the Electrical Dealers Association of Brooklyn, request for the benefit of the trade the following:

"1. That you abide by your franchise and do not ship to non-stocking dealers except at list prices.

"2. That the trans-shipper be immediately cut off.

"3. That your refrigerator association cooperate with us in the matter of eliminating that type of discount house, thereby enabling the legitimate dealer who stocks a reasonable amount of refrigerators to make his full margin.

"Approximately 25% of our refrigerator business goes to the above type of so-called dealer. Not only does this harm our refrigerator business, which is seasonal, but makes it impossible to profit by the handling of the same. Elimination of 'discount houses' is one of the salvations of the electrical appliance dealer, and we know you are desirous of having us remain in business."

THE COLD CANVASS

By B. T. Umore

(Concluded from Page 1, Column 1) hal for the sole purpose of being better acquainted with foreigners.

Further details regarding interviews, etc., with those ladies will be furnished at the Japanese Club in the office of the Secretary of the Commander of the Naval Fleet in Shanghai.

Foodstuffs will be sold at 23½ discount. Sake will be free of charge to those who drink to the health of the Emperor and a quantity not exceeding 2 litres can be taken away each day.

In the event of foreigners wishing to employ Japanese house maid servants they are requested to make application to the Garrison Commander at the Japanese Club as soon as possible as there are a limited number of "Nei Sans." Bachelors need not apply. All single men will be supplied with mates as soon as facts are known. Married men applying for "Nei Sans" will have to obtain consent of their wives.

Foreigners who employ "Nei Sans" will be entitled to one bath a week in any of the undermentioned Bath Houses in Hongkew, free of charge. Foreign ladies can apply for Japanese male "Masseurs." Bath Houses are situated at:

1. 275 Range Road. 2. 393 Boone Road. 3. 120A Woosung Road.

BY ORDER OF THE GARRISON COMMANDER OF THE JAPANESE EXPEDITIONARY FORCE IN SHANGHAI

Cars Into Cannon

Automobile dealers of America will soon launch a campaign to drive ancient jillies off the streets. To the tune of brass bands and the

tramping feet of parades, dealers will attempt to sell the nation on the idea of trading in old wrecks for good used cars.

The jillies, it is reported, will be junked and sold as scrap iron. There happens to be a ready market in Japan for scrap iron and steel just now. They convert our scrap into modern munitions for their scrap with China.

It has occurred to a number of people that the Japs are making a big mistake. They could snuff out a lot more Chinese lives (macabre joke) merely by giving the old jillies away in China, and letting the Chinese drive them.

International Relations

And speaking of our international relations (who isn't, these days?) B.T.U. will wager a pretty penny that most of them would like to leave their troubled homelands and come over here to live with us.

Consumers Research

Every time we mention Consumers Research in this paper, we get a stiff, threatening letter from Wickersham, Epstein, Corcoran, and Jehovah, Attorneys At Law.

But they're not above mentioning us in their bulletin. What's more, we were cited as an authority last time, we understand. But not on air conditioning and refrigeration—on candid cameras.

Our Secret Agent No. 13131313 whispered to us (after the curtains were drawn, the doors double-barred, the air-conditioning system shut down, and our false whiskers were on) that a recent Consumers Research bulletin cites AIR CONDITIONING & REFRIGERATION NEWS as an outstanding example of the use of candid photography in a publication, and quotes some remarks of the editor on the subject.

We can't swear to this, of course, but we do affirm the fact that the News pioneered candid photography—six years ago. And now look at it.

The "all-porcelain" refrigerator makes both bigger profits and permanently satisfied customers—because:

PORCELAIN ENAMEL

THE Lifetime Finish

Porcelain enamel keeps that sales floor complexion.

PORCELAIN ENAMEL INSTITUTE, INC.
612 NORTH MICHIGAN AVENUE • CHICAGO

1 2 3 4 5 6 7 8 9 10 11 12 **13** 14 15

No. 13 of a Series of Curtis Advanced Engineering Features.

Extra-Large Curtis Condensers and Receivers Increase Efficiency and Save Power

All Curtis units have unusually large condensers and receivers. This means that when you specify Curtis, the user benefits by a larger than average pump-down capacity during shut-downs, as well as a definite saving in power during operating periods.

Curtis' outstanding performance is a matter of record—proven in thousands of installations throughout the world. You protect your own reputation and your customers' investment when you install Curtis units. There's a model for every refrigeration and air conditioning requirement, from 1/6 to 30 h. p. Every Curtis unit is precision engineered to deliver economical, efficient, care-free performance throughout its long life.

Write today for information on the complete Curtis line.

CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Co.
1912 KIENLEN AVENUE ST. LOUIS, MO.

CURTIS
"Builders of Condensing Units Since 1922"

Represented in Canada by
Canadian Curtis Refrigeration Co., Ltd.
20 George St., Hamilton, Ont., Can.

FIRST CHOICE OF MILLIONS!

**Now Popularly
Priced!**



**Triple-Thrift
REFRIGERATOR**



See your **GENERAL ELECTRIC DEALER**

One of a series of General Electric 24-sheet posters appearing in full colors on the nation's billboards.

We Tell 'Em—You Sell 'Em!

IN a recent survey made in 5,000 typical homes for Sales Management Magazine by the Market Research Corporation of America, General Electric Refrigerator and Kitchen Appliance advertising led the field in popularity by a wide margin. It received *more than twice as many* favorable mentions as that of the next leading competitor. There will be more of this type of General Electric advertising in 1938. It's the kind of sales support you want!

Going up now on the nation's billboards is the striking, full color G-E 24-sheet poster reproduced above. It directs refrigerator prospects to the *General Electric Dealer*. Other G-E posters will follow.

And again this year, G-E Refrigerator advertising in leading national magazines and key city newspapers from coast to coast will *dominate*. It is quality advertising as well as quantity advertising.

We're telling 'em in a **BIG WAY** about the 1938 G-E Triple Thrift Refrigerator. You can sell 'em in a **BIG WAY**! See your General Electric Distributor **NOW**.

General Electric Company, Specialty Appliance Division, Nela Park, Cleveland, Ohio



1938 G-E magazine and newspaper advertisements will again dominate! See above. Watch for more.

The **COMPLETE** line of electrical home appliances—
every one proved by performance, tested by time!

**GO TO TOWN
on the
MAINLINE**

G-E Refrigerators, Ranges,
Electric Sink with Dish-
washer and Disposall,
Water Heaters, Washers,
Ironers, "Packaged"
Commercial Refrigeration
Products.



GENERAL ELECTRIC RANGE
with Tel-a-Cook Lights,
Select-a-Speed Calrod
Cooking Unit, Tripl-
Oven and other advanced
features. 15 models at
popular prices.

GENERAL ELECTRIC SINK
with Dishwasher and
Disposall. Washes the
dishes, disposes of food
wastes—*electrically*. It's
your next big sales
opportunity!



GENERAL  ELECTRIC

Profitable Sales Ideas

Automobile & Appliance Dealer Boosts Sales By Combining Promotion On Both

WATERLOO, Ind.—An automobile and appliance dealer who sells cars to his appliance owners, and appliances to his auto customers, and apparently makes a comfortable profit from selling and servicing both lines, is Tatham's Sales & Service, local dealer in Ford cars and Norge appliances.

Population of Waterloo, a strictly rural community, is somewhat under 1,700 people, but during 1936 the company sold 25 Norge appliances (refrigerators, ranges, washers, and ironers) and duplicated this feat in 1937. Sales were about equally divided between townfolk and farmers from the surrounding countryside, the dealer from Waterloo, Ind., reports.

COMBINE PROMOTION

Fundamental precepts of Mr. Tatham's appliance selling formula are threefold: maintain an attractive floor display showing all appliances handled; combine appliance advertising with automobile promotion in every conceivable way, particularly in regard to service; and boost appliances at every opportunity through personal sales contacts.

The gleaming white appliances form an attractive display in the sales room, and occupy a space that otherwise would be wasted; combination automobile and appliance advertising has proved a splendid sales booster for both lines; personal contacts add nothing to the company's overhead expense, but contribute much in the way of sales stimulation.

NO INTERFERENCE

Mr. Tatham established his appliance department six years ago in the belief that a more diversified line of products would result in greater profits. This belief, he says, has been thoroughly justified.

"You might think," he elucidated, "that our appliance program would interfere with our car sales, but it doesn't. In fact, our Norge appliances help us sell more new cars. You see, it broadens our acquaintance, brings more prospects and customers into our place at more frequent intervals, and increases

shop and service profits. Maintaining our appliance display and our new car display on the same sales floor has a decided psychological advantage, for when a person comes in to see one of these items he can't very well help seeing the other also, and it frequently becomes a comparatively easy matter to make a double sale.

WIFE DECIDES

"Of course, not many families can afford to buy a complete electric kitchen and a new car at the same time. But it has been our experience that no matter how badly one member of any family may want a new car, the wife usually holds the whip hand. And if the wife wants a new washer or refrigerator, she's going to have it.

"So if we weren't equipped to satisfy her appliance needs, she probably would get her refrigerator or washer through a mail-order house, and we would lose not only that sale, but, most likely, the car sale too.

APPLIANCES FIRST

"On the other hand, if we sell her the appliance she wants, the chances are that her husband will be back in to buy a new car just as soon as he sells another flock of \$10.50 hogs, a few loads of dollar wheat, or receives a few more milk checks. In this way, our car sales and service keep apace, and our profits increase accordingly.

"But more important even than the way in which our appliance business helps our car sales is the dandy profit which we make from the sale of the appliances themselves. Sale of some of these items brings in as much net profit as the sale of a new car—often more, in fact, when you consider the number of bad automobile trade-ins we have to take to keep from losing sales."

The future of appliance merchandising "looks great" in this territory, Mr. Tatham declared.

"Here's why: Rural electrification is increasing by leaps and bounds in this vicinity. In one township alone, Northern Indiana Public Serv-

ice Co. built 18 miles of new line, providing 78 well-to-do farmers with electric service for the first time.

REA PROVES HELP

"Next year, the entire county is scheduled for service through the Rural Electrification Administration, and a thousand or more new subscribers will thus be provided with electricity.

"Every new rural user is a bona fide prospect for new electrical equipment ranging in value from a \$500 minimum to a maximum of \$2,000 or more.

"It is a great mistake," declared Mr. Tatham, "to picture the modern farmer as a tight-fisted individual who wouldn't part with a penny in order to provide his wife and family with a few labor-saving appliances. On the contrary, the modern farmer usually jumps at the chance to electrify his home as soon as possible (i.e. when he has money).

FARMERS BUY ELECTRICALLY

"Most farm families to whom electricity has just been made available purchase electrical appliances in the following order: washer, refrigerator, ironer, range. Some, of course, reverse this schedule, or mix it up to conform with individual needs or whims.

"Today, more farmers are buying complete electrical equipment than the average city family. Principal reason for this is that they now have more money than they have had in years. Few farmers, of course, can afford (even now) to purchase all of the desired electrical equipment at once. But gradually, through the purchase of appliance after appliance, farmers are becoming completely electrically equipped.

SERVICE BIG FACTOR

"At present we handle only refrigerators, ranges, washers, and ironers, but as soon as sufficient demand arises we plan to add to our line such items as milking machines, hot water heaters, chick brooders, automatic pumps, and lesser appliances like roasters, toasters, percolators, heaters, fans, and sweepers.

"We learned through our automotive experience the necessity for maintaining facilities for prompt and efficient service, and we have carried this practice over into our appliance merchandising. We have found this 'service argument' to be our most effective means of dealing with price-conscious customers. We simply convince them that, in the long run, they will save money by buying from us, because we are able to offer them this type of service."

SUMMING IT UP

Summing up his tale of automobile-appliance merchandising, Mr. Tatham says:

"In the six years that we've been selling the Norge line of home appliances, we have found it a valuable addition to our automobile agency business, but the future for our appliance business bids fair to be even brighter than the past, owing to the vast virgin rural market that is broadening every year."

THE TREND

In Refrigeration and Air Conditioning is toward

PALCO INSULATION WOOL

EFFICIENT PERMANENT
155 B.T.U. (Peebles) From Redwood bark

NON-SETTLING

Under severe vibration

REPELS MOISTURE

No capillarity

ECONOMICAL

Light weight . . . goes further

Write for 16-page Insulation Manual

THE PACIFIC LUMBER COMPANY
SAN FRANCISCO CHICAGO
LOS ANGELES NEW YORK
THE INSULATION OF THE AGES

Pennsylvania Dealer Builds Floor Traffic By Setting Up a Women's Hosiery Department

BETHLEHEM, Pa. — Using a women's hosiery department as a store-traffic builder has proved a means of increasing refrigerator leads and sales for Longnecker's, Norge dealer here.

A modern hosiery department, similar to that in a department store, together with attractive hosiery window displays, has brought women into the store and made it easy for salespeople to talk with them about appliances.

Inducement used to bring women into this store for hosiery is the "club card." Each woman making a hosiery purchase receives a card entitling her to a free pair of hosiery after she has purchased 12 pairs, which in reality gives her a 10% discount on her hosiery bill.

More than a thousand of these club cards were issued in the first five months after the department was opened. This means that a large number of these women come to the store as often as 12 times a year.

The department handles a well

known, nationally advertised brand of hosiery, so that no additional advertising is required to put the line across.

"We have long realized that the appliance store should have some means of building traffic," said Mr. Longnecker, "because furniture and department stores develop their prospect lists from the large number of women who pass through the store."

"We decided a brand of hosiery known to most women would bring them into our store, particularly if we featured the 'club plan' of purchasing, which is being discontinued by some department stores because they don't feel able to give the free pair and still cover their overhead expense.

"In our store, the hosiery department does not mean any additional overhead; it is profitable as a separate unit. But its greatest value to us is in the number of floor sales we can make, and the number of leads that are developed from the women who enter the store."

Salesmen For Oakland Store Present Sales Talk At Weekly Meeting Before Critical Audience

OAKLAND, Calif. — "Demonstration selling," in which one man each week gives his actual sales talk before a group of fellow salesmen, does much to increase the effectiveness of sales meetings for the electrical appliance department of the H. C. Capwell Co.

"After a lot of experimenting, we've standardized on an 'open forum' type of meeting, in which demonstration work plays an important part, as the best way of keeping meetings alive and interesting," says M. H. Losser, superintendent of the home appliance department. "Men who used to consider meetings a worthless bore now sit on the edges of their chairs to catch every word."

Under the open forum plan, a different salesman is appointed each week to conduct the meeting. In this work, the men get some valuable practice in public speaking—and this helps give them confidence.

First part of the meeting is devoted to an open discussion. Each man is asked the problems he has encountered during the week on which he'd like some help. One recent subject that yielded some valuable

ideas was the problem of getting the names of floor prospects.

Then comes the demonstration sale, in which one man—appointed a week in advance—presents his talk to another who acts as a prospect. The latter's job is to bring up all possible points of sales resistance. During this demonstration, the other men make notes on strong and weak points of the presentation, which they bring up afterward. In the discussion, many a weak spot is eliminated, and often even a strong point is made stronger.

"One of the biggest advantages of the demonstration work is the fact that it makes the men who give the talks do some extra thinking," Mr. Losser thinks. "Too many men who start out with a fine sales talk gradually lose part of it point by point—and then wonder why their sales drop."

"As they become too familiar with the merchandise, they forget that the customer doesn't know all about it. Knowing that the other salesmen will be looking for omissions during the demonstration, they watch this point—and improve their own selling."

New Crosley Folder Is Also Wall Poster

CINCINNATI — Crosley Radio Corp. has issued a dealer sales folder in color which can be opened up for use as a wall poster.

Under a large illustration of an open Shelvador are described the various features of the refrigerator, each accompanied by a photograph. Beneath the features are listed the 11 models comprising Crosley's 1938 line, with complete specifications of each.

Also included in the folder literature is a colored illustration of a Shelvador standing inside a horseshoe magnet, the latter attracting a crowd of people. At the side of this drawing are listed seven reasons why dealers should sell more Shelvadors.

Crosley's new plant at Richmond, Ind., and the personnel of Crosley's refrigerator division also are illustrated with descriptive literature.

'Buddy' Meyer Official of Jackson, Miss. Dealership

JACKSON, Miss.—Crawford, Inc., local dealer for Airtemp air-conditioning and heating systems, has been appointed dealer for Frigidaire refrigerators, Easy washers, Philco radios, and Roper gas ranges.

The company also has moved into larger quarters at 123 N. State St. The firm has been in business here for more than a year, and is headed by W. H. Crawford.

Other officers of the company are: C. S. "Buddy" Meyer, second baseman for the Washington Senator's American League baseball team, vice president; B. L. Palmer, secretary and manager of the engineering department; A. E. Shafer, manager of the appliance department; Robert Puckett, manager of the refrigeration service department; and Marshal Quinn, manager of the radio service department.

216 DIFFERENT COOLER COILS

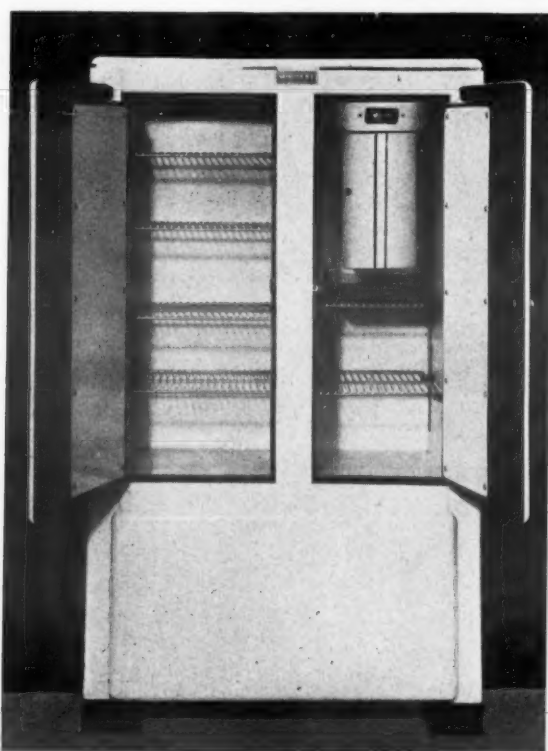
REMPE UNIT COOLERS are now available in 216 different combinations of sizes and purposes. Sizes for any installation. Types for all refrigerants — Sulphur Dioxide, Freon, Methyl Chloride, Ammonia, Brine or Water. Arranged for temperatures from 70° down to 11° and even lower on special order. They're beautiful! Efficient! Built for long service! Backed by 43 years of experience in this field. Write for data.



REMPE Unit COOLERS
REMPE CO. 340 N. Sacramento Blvd., CHICAGO

NEW '38 MODELS

"Built by MIDWEST"



"138"

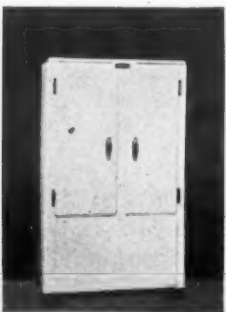
NET—13.5 CU. FT.

"168"

NET—16 CU. FT.

"198"

NET—19.5 CU. FT.



OUTSTANDING FEATURES—LOW PRICES

- BONDORIZED—DULUX EXTERIOR • PORCELAIN INTERIOR
- STREAMLINED STYLING • "HUMIDIPACK" EVAPORATORS
- TOUCH-OPERATION LOCKS • BALSAM WOOL INSULATION
- IDEAL SIZES FOR CLUBS, TAVERNS, LARGE HOMES, FRATERNITY AND SORORITY HOUSES, ETC.

These models may be purchased with or without evaporators. However, we do NOT furnish valves, controls, tubing or compressors.

MIDWEST MFG. COMPANY—Calesburg, Illinois

Export Sales Office, 330 S. Wells St., Chicago. Cable Address, "MIDWEST-CHICAGO"

'Stored Up' Human Blood Kept & Shipped Under Refrigeration Saves Lives In War-Torn Spain

BARCELONA, Spain — Wounded soldiers of war-torn Spain now have more chance of living as a result of a recent medical discovery in the field of blood transfusion—a discovery which would be valueless if it were not for electric refrigeration.

Human blood is drawn from the veins of willing Loyalist donors; it is maintained at a temperature slightly above freezing by means of electric refrigeration; trucks, equipped with refrigerators and batteries to run them, carry this juice of life within shot of No-Man's Land to fill the emptying arteries of wounded soldiers—that's the brief of the thing. Here's the story:

DEVELOPED BY DOCTOR

This discovery which has revolutionized the science of blood transfusion was made by Loyalist Spaniard Dr. Frederic Duran-Jorda, technical chief of Servei de Transfusio de Sang Al Front or the "Service of Blood Transfusion at the Front," as we would say it.

The doctor first experimented with the preserved blood from corpses. But this blood taken from soldiers killed by machine gun slugs and flying shrapnel wouldn't work—experiments showed when a man died a violent death his blood didn't coagulate properly.

DONORS BLED REGULARLY

So this service sent out a call for volunteers—blood volunteers who would donate for the cause of Spain against Franco. These donors are bled every three weeks to a month

of about 300 cubic centimeters, although many want to give oftener. This blood is mixed with one-tenth part of citrate of soda, 4% solution, and is canned up in half-gallon jars. About six different bloods are mixed to simplify matters technically and biologically.

The blood is preserved by refrigeration at a point one or two degrees Centigrade above zero—and electric refrigeration has the job of keeping the temperature constant.

Special camions or trucks have been constructed to carry the blood to the front. They look like huge ambulances and are equipped with electric refrigerators run by a set of batteries. A dynamo charges the batteries and is equipped with an explosion motor.

LIFE-SAVING TRUCKS

With its cargo of blood, the truck pulls into an emergency hospital somewhere near the front lines. The cans of blood are heated to 40° Centigrade, and the wounded soldier has all the blood he needs, and the apparatus to give it to him—thanks to the Spanish doctor.

The new system is much quicker and does away with the half-mysterious manner with which former transfusions were given. Dr. Duran-Jorda has made nine transfusions working alone, in less than two hours. And the front line doctors don't have to scout around among dying men and soldiers to find blood which is suitable for a dying man.

Appliance And Conditioner Dealers Dominate Detroit Building Show

DETROIT — Household electrical appliances and home air-conditioning equipment were prominently featured in the twentieth annual Detroit Builders' Show held in Convention Hall here from Feb. 18 to 27.

Appliances were displayed individually and in all-electric kitchen units by several leading distributors and dealers, including Crowley-Milner Co., department store; Electra-Plance Shop, Hotpoint dealer; General Electric Supply Corp., G-E distributor; Good Housekeeping Shop, Universal Cooler dealer; J. L. Hudson Co., department store; Ned's Auto Supply Co., G-E dealer; Republic Supply Corp., Crosley distributor; Ryal's, Inc., Frigidaire dealer; and Wagner Electric Co., Frigidaire and Westinghouse dealer.

Detroit Edison Co. featured several makes of electric ranges in a "cooking by wire" display.

Demonstrations of the Bendix home laundry were given at the J. L. Hudson exhibit, which also included the leading makes of refrigerators, ranges, and other major appliances.

Electra-Plance Shop's booth housed a compact Hotpoint all-electric kitchen ensemble, including range, refrigerator, and electric sink.

The G-E Magic Kitchen, which transforms itself from an old-fashioned ice box-and-coal stove outfit into a modern all-electric unit, created considerable public interest at the show.

In addition to Crosley refrigerators, Republic Supply Corp. displayed

the Combustioneer automatic coal burner, for which it has just become distributor in this area.

Exhibitors in the air-conditioning field included Airtemp Construction Corp., Detroit factory branch for Airtemp, Inc.; Domestic Air Conditioning Co., local manufacturer; Fairbanks, Morse & Co., air-conditioning division; Fox Furnace Co., manufacturer of Sunbeam air-conditioning equipment; Gar Wood Industries, Inc., maker of Gar Wood home air-conditioning equipment; Mechanical Heat & Cold, Inc., local distributor for Westinghouse air-conditioning equipment; and Specialties Distributing Co., distributor for Bertossa air-conditioning apparatus.

The Gar Wood exhibit featured a miniature duct system representing that used in conjunction with a heating and air-conditioning unit in delivering air to and from the rooms of a home.

Wesco of Des Moines Has New Quarters

DES MOINES — Westinghouse Electric Supply Co. has moved its local branch from 218 Second Ave. to 1400-1406 Walnut St., a location which provides greater warehouse space and a better display floor. The display floor, which is being modernized, will include an electric kitchen built especially for the space. Glen Merritt is manager of the branch.

Fisher Is Frigidaire Budget Director

DAYTON, Ohio—Edgar A. Fisher, manager of the appliance engineering department, has been appointed general budget director of Frigidaire division, General Motors Sales Corp., announces E. G. Blechler, general manager.

F. H. McCormick, chief engineer of the electric range engineering department, succeeds Mr. Fisher as manager of the appliance engineering department.

In his new position, Mr. Fisher will be in active charge of expense control for all Frigidaire departments. Mr. McCormick assumes charge of the engineering research and product development work on electric ranges, water heaters, washers, and ironers.

Mr. Fisher has been with Frigidaire and its predecessor companies for 22 years, beginning as a clerk in the purchasing department. His subsequent positions have been ice cream cabinet sales manager; branch manager in Providence, R. I.; assistant treasurer; and sales budget director, in addition to his two most recent posts.

Before joining Frigidaire in 1935, Mr. McCormick was assistant chief engineer for Edison General Electric Appliance Co., Inc. His first job was with the Washington Water Power Co., Spokane, Wash., selling and servicing electric ranges.

With Edison G-E, Mr. McCormick had direct charge of design of all Hotpoint and General Electric ranges and water heaters from 1922 to 1935.

Motor Parts Co. Leonard Philadelphia Outlet

PHILADELPHIA—Appointment of Motor Parts Co. here as Leonard refrigerator distributor has been announced by R. I. Petrie, sales manager of Leonard division of Nash-Kelvinator Corp., Detroit.

Motor Parts Co. will serve Leonard dealers in southeastern Pennsylvania and southern New Jersey, including Philadelphia, Reading, Allentown, Bethlehem, and Camden. Executives of the company include Carl Wilkenburg, president; Stuart F. Louchheim, treasurer; and William Vogdes, sales manager.

Costain Leaves Position With Universal Cooler

DETROIT—C. E. Costain has resigned as treasurer of Universal Cooler Corp. to take a position as vice president of L. A. Walden & Co., a general insurance and underwriters agency here.

Mr. Costain has been connected with Universal Cooler and its affiliated Canadian company since 1926, serving as treasurer of the corporation for the past six years. During most of this time, he was closely associated with the late Geoffrey M. Johnston, former president of Universal Cooler Corp.

Gies & Shelby Conduct G-E Dayton Meeting

DAYTON, Ohio — Dealers and salesmen of General Electric products met at the Dayton-Biltmore hotel on Feb. 25 for a one-day sales convention. A. J. Gies and H. W. Shelby were in charge.

Gies is distributor in Dayton for General Electric products, and Shelby is sales manager for Gies, Inc., of Cincinnati. New products were displayed and merchandising methods were discussed.

New Dealership Formed By Johnson Brothers

BALTIMORE—William E. Johnson and Elmer Y. Johnson, who have been in business here for a number of years under the name of Johnson Brothers, have formed the Johnson Brothers Radio & Television Co., Inc. with a capitalization of \$51,000, and have opened a combined refrigeration, radio, and appliance business at 215 W. Saratoga St.



without embarrassment or offense. I'll steer you clear of the bad risks.

Through me you can free yourself from credit and financing worries—devote 100% of your time to your real business of sales. Your job will become easier. Profits will flow in faster.

I am your local Commercial Credit Company manager. I am in more than 200 offices in principal cities of the United States and Canada. My company's great resources are not affected by temporary adverse local conditions. I can finance all the sales you can make. I stand ready to serve you. Call on me!



RADIOS • HEATING EQUIPMENT
AIR CONDITIONING EQUIPMENT
RANGES • ELECTRICAL APPLIANCES



COMMERCIAL CREDIT COMPANY

Commercial Bankers

Headquarters: Baltimore ★ Consolidated Capital and Surplus Over \$64,000,000

SERVING MANUFACTURERS, DISTRIBUTORS AND DEALERS THROUGH MORE THAN 200 OFFICES IN THE U.S. AND CANADA

A Record Of Household Refrigerator Sales By States, With Wired Homes Figures

Editor's Note: The total figures given for each state represent the total number of refrigerators sold, and not the total now in use. To get

a total in use figure it would be necessary to make some provision for retirements (the number of refrigerators replaced and junked). Thus a

correct market saturation percentage cannot be obtained by dividing the sales total by the number of wired homes.

State	Previous to							Total Wired	
	1932	1932	1933	1934	1935	1936	1937	Total	Homes
Alabama	36,900	5,150	9,330	15,830	24,105	22,416	25,009	138,740	184,000
Arizona	9,300	1,590	2,310	3,610	5,803	5,958	7,933	36,504	64,500
Arkansas	20,500	3,230	5,290	8,740	10,173	11,377	12,379	71,689	109,900
California	181,200	38,090	48,050	64,790	161,288	148,586	124,117	766,121	2,383,000
Colorado	29,100	5,910	8,260	9,940	12,329	14,702	14,808	95,049	186,800
Connecticut	61,200	16,700	16,940	17,560	24,339	33,651	43,141	213,531	416,800
Delaware	8,600	2,090	2,230	2,880	3,402	3,787	5,190	28,179	45,400
Florida	41,000	7,380	10,080	16,540	28,087	29,758	30,801	163,646	258,100
Georgia	57,400	7,400	12,710	27,450	29,197	32,556	37,170	203,883	223,800
Idaho	9,300	1,640	2,200	4,160	7,210	9,180	9,307	42,997	85,300
Illinois	275,600	59,480	69,070	101,450	116,286	145,562	178,322	945,770	1,692,400
Indiana	83,200	14,310	21,770	33,220	39,792	55,970	64,237	312,459	653,500
Iowa	50,700	9,620	13,360	19,300	25,074	28,937	34,020	181,011	429,100
Kansas	48,100	7,730	11,580	20,900	19,810	23,108	24,346	155,574	290,100
Kentucky	49,200	8,390	13,990	18,550	18,315	26,481	30,038	164,964	254,800
Louisiana	25,700	4,630	7,230	9,350	15,401	19,692	22,470	104,473	206,700
Maine	20,500	5,230	5,340	6,580	7,827	7,133	8,825	61,435	171,000
Maryland & D. C.	120,800	27,980	36,850	36,060	34,620	40,997	48,348	345,655	465,000
Massachusetts	160,000	35,300	49,050	48,920	65,816	77,901	96,139	533,126	1,091,500
Michigan	130,100	26,480	31,190	50,560	68,736	101,932	121,434	530,432	1,073,200
Minnesota	54,100	14,380	14,240	16,720	22,533	28,008	41,626	191,607	433,400
Mississippi	11,600	1,890	3,170	4,840	7,266	10,882	11,226	50,874	89,600
Missouri	137,600	26,850	37,680	50,210	47,460	62,022	62,839	424,661	631,600
Montana	11,900	1,690	3,360	4,910	6,462	8,797	8,526	45,645	85,800
Nebraska	33,600	6,210	8,330	13,500	17,147	17,406	17,066	113,259	209,700
Nevada	3,400	860	980	1,220	1,981	2,608	2,710	13,759	20,700
New Hampshire	13,400	3,000	3,650	4,570	5,707	6,322	6,819	43,468	111,300
New Jersey	176,800	43,830	47,840	55,970	69,134	85,888	93,852	573,314	1,017,400
New Mexico	6,000	910	1,680	2,400	3,379	3,781	4,619	22,769	35,500
New York	692,400	191,600	194,300	177,900	192,952	233,443	274,442	1,957,037	3,240,800
North Carolina	48,500	6,690	14,400	19,480	26,250	35,937	46,070	197,327	296,600
North Dakota	7,800	1,540	1,790	3,010	4,131	3,251	4,210	25,732	58,700
Ohio	229,000	39,710	66,080	85,290	97,557	130,847	165,367	813,851	1,518,800
Oklahoma	45,100	8,670	12,040	16,810	17,581	19,883	22,364	142,448	237,500
Oregon	32,400	5,070	7,140	14,570	15,217	21,681	17,338	113,416	227,800
Pennsylvania	341,200	72,110	98,770	113,930	127,421	180,697	218,813	1,152,941	1,955,800
Rhode Island	28,000	7,430	8,680	7,490	8,056	10,099	12,845	82,600	172,200
South Carolina	22,400	3,300	6,280	9,350	12,385	17,518	21,810	94,034	113,300
South Dakota	9,300	1,330	2,410	4,060	4,878	5,019	4,772	32,159	71,300
Tennessee	50,700	7,500	9,330	25,130	25,708	30,593	35,112	184,074	255,600
Texas	129,000	20,830	35,710	50,710	65,178	79,390	91,155	471,974	674,900
Utah	15,300	3,080	4,240	5,600	7,487	11,434	12,059	59,201	108,100
Vermont	9,000	2,260	2,460	2,890	3,492	4,381	5,907	30,390	68,600
Virginia	62,300	13,580	17,360	21,320	23,196	30,913	35,322	203,991	282,700
Washington	36,900	5,600	7,910	17,200	22,914	32,915	32,244	155,683	406,600
West Virginia	47,700	8,560	14,040	17,040	16,287	23,906	26,555	154,089	199,800
Wisconsin	50,000	10,480	12,960	18,310	26,466	33,880	50,211	202,308	593,100
Wyoming	5,200	710	1,340	2,180	2,484	3,107	3,084	18,105	31,400

Sales-by-states estimated by Air Conditioning & Refrigeration News from all available sales figures. Wired homes figures from Edison Electric Institute's preliminary estimates for 1937.

Betty Learns About Washday



Louis R. Swenson (right), sales manager for Leo J. Meyberg Co., Inc., Los Angeles distributor for Bendix home appliances, instructs Betty Grable and her newlywed husband, Jackie Coogan, in the use of the Bendix home laundry just installed in the film couple's Hollywood home.

1937 Was Best Year For Frigidaire of Canada

TORONTO, Ont., Canada — The most successful year in the history of the Frigidaire division of General Motors Corp. of Canada was experienced in 1937, according to W. C. Cannon, Canadian sales manager, who reported that sales had increased more than 53% above those of the previous year.

Mr. Cannon's announcement was made during a sales convention attended here by more than 350 dealers and salesmen from all parts of Ontario. The meeting included a trip through the Leaside Frigidaire plant.

Charlotte, N. C. Distributor Celebrates Anniversary

CHARLOTTE, N. C.—Pound & Moore Co. recently celebrated the thirtieth anniversary of its founding by R. M. Pound and George H. Moore, the president active heads.

The firm was established as an office outfitting and printing concern, but in recent years has entered the household appliance, commercial refrigeration and air-conditioning fields. A branch store at 122 E. Fourth St. was recently opened for commercial refrigeration activities, supplementing the headquarters store at 213 S. Tryon St.

W. A. Graham is manager of the refrigeration, air-conditioning, and heating department. Other members of this division are G. F. Daniel, N. L. Cook, H. S. Hunter, J. L. Warren, H. L. Kirk, Edgar Rawls, W. H. Tillotson, L. C. Montayne, W. A. Brice, and H. S. Caldwell.

C. H. Cofer is refrigeration service manager, and assisting him are H. L. Cartee, A. M. Bloodworth, and M. C. Cook.

Griffith Distributing Co. Gets New Quarters

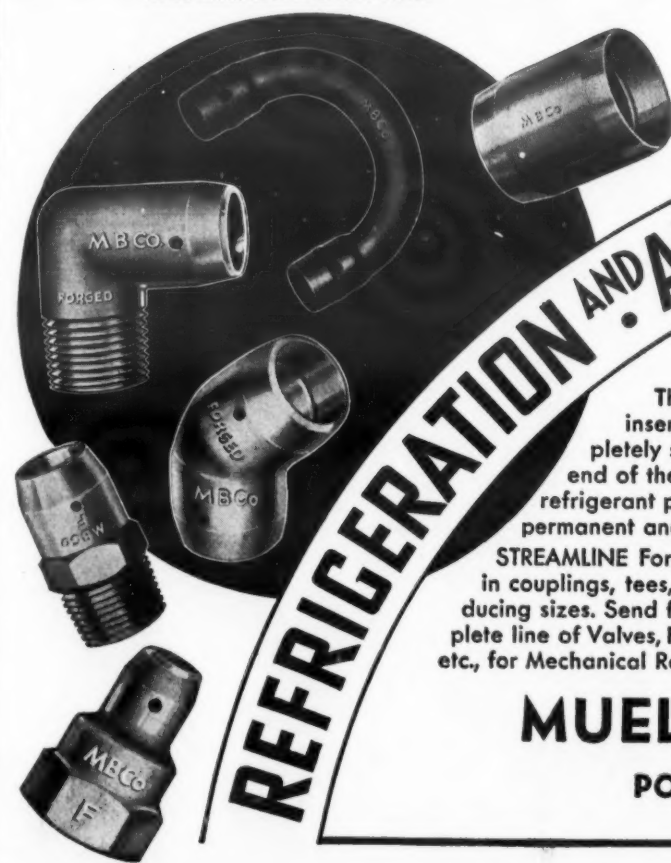
DAYTON, Ohio—Griffith Distributing Co., local distributor of Grunov products, will move sometime during March into new headquarters at 135 East Second St. here, where floor space and storage capacity will be enlarged considerably.

Brown And Angermeier Open Evansville Store

EVANSVILLE, Ind.—The Modern Home Appliance Shop, Inc., has been organized here by Huette C. Brown and N. J. Angermeier, both of Evansville, and Joseph Callahan, George Aannon, and B. C. Frankel of Louisville.

STREAMLINE FOR SAFETY AND ACCURACY IN PIPE FITTINGS

TRADE MARK REG. U. S. PAT. OFFICE



REFRIGERATION AND AIR CONDITIONING

● The STREAMLINE Solder Fitting is the only solder type fitting on the market in which POSITIVE PROOF of a leak-proof joint can actually be seen without resorting to a pressure test.

There is no guess work about STREAMLINE. The solder inserted through the feed hole (an exclusive feature) completely seals the bonding surfaces, and its appearance at the end of the fitting assures you, beyond all doubt, that the joint is refrigerant proof, that vibration cannot work it loose, and that it is permanent and actually stronger than the tube itself.

STREAMLINE Forged Brass Fittings are furnished in complete range in couplings, tees, elbows, etc., with male and female ends and in reducing sizes. Send for Catalog and Price List 2003 illustrating our complete line of Valves, Fittings (solder type and flare), Dehydrators, Strainers, etc., for Mechanical Refrigeration.

MUELLER BRASS CO.
PORT HURON, MICHIGAN

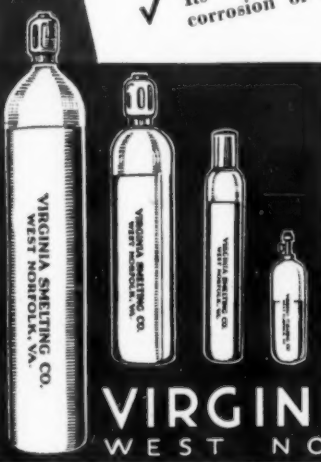
for true economy use a quality refrigerant!

V-METH-L

V-METH-L (METHYL CHLORIDE) HAS THESE ADVANTAGES:

- ✓ Uniform boiling point (−10.6° F.)
- ✓ Has pleasant odor and is easy to handle
- ✓ Contains no moisture or acidity
- ✓ Assures positive pressure on the low side of refrigerating system
- ✓ Its use avoids trouble with the lubricant and corrosion of metals
- ✓ Avoids hazard of moisture leaking into the system
- ✓ Allows economical construction with flanged copper tubing

V-METH-L and EXTRA DRY ESOTOO are promptly available throughout the world.



VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

Distributor-Dealer Doings

Jersey Distributors Think Less 'Depression Talk', More Dealer Activity, Is Need Now

NEWARK, N. J.—Restoration of confidence on the part of the buying public is a prime necessity for reviving the refrigeration market in this area, according to a survey recently conducted among distributors and dealers in this territory.

General opinion is that the public has the money to buy, but has been scared out of a buying mood by the threat of losing jobs, receiving wage cuts, and otherwise being adversely affected by the current recession.

Convinced that scarcity of money has been publicized out of all proportion to reality, local distributors feel that dealers could do much to encourage business by abandoning their attitude of "watchful waiting."

NOT MUCH CHANGE

Investigation has shown that sales are not much different so far this year than they were in the corresponding period of 1937. However, the distributors say, dealer confidence is lacking, and is directly affecting the buying public. Soft-pedaling of "recession" talk is advocated by the distributors, who, pointing to certain dealers' improved sales records, assert that sales can be made.

The dealers in northern New Jersey say that prospects are not lacking, but the incentive to buy has been diminished by general, persistent talk of unfavorable economic conditions.

While some dealers believe sales will improve this spring, consensus is that nothing encouraging can be expected until the public fear of losing jobs or receiving salary cuts has been dismissed. Money is being withheld from circulation, the dealers believe, for the purpose of setting up reserves.

Distributors anticipate that natural seasonal demand sooner or later will give dealers a more cheerful outlook, even if general unrest as to the outcome of "small business" conferences and similar recovery movements is not assuaged.

NO OVERSTOCKING FEAR

Dealers who stocked up with new models express no alarm over inability to move them, as they feel national unrest eventually will abate. Sales for the year will, they assert, exceed those of 1937. This outlook for 1938 sales also is maintained by the distributors.

Commenting on reluctance of dealers to purchase units, C. A. Malliet, sales manager of B. & O. Radio, Inc., Norge distributor, said: "While our sales for January were better than those of the same month in 1937, and the last week of the month was specially promising, we still feel there is room for much improvement."

"The average dealer is rather hesitant because of what he reads in the paper. While we do not attempt to minimize the importance of economic conditions in general, we believe there is actually more potential business than most dealers realize."

"We have greatly expanded our facilities this year, and we see no reason to regret the move, for we think electric refrigeration still is a growing business."

PLANNING NEEDED

Stating that his company's sales have risen every year since 1932, Corley W. Kirby, household sales manager of Frigidaire Corp., distributor, said, "We realize considerable effort must be expended to overcome sales resistance built up by public fear. The potential market is perhaps bigger than ever before, but it will take careful planning and counter-argument to convince the public that they can safely buy at this time."

In similar vein, John Eick, Jr., sales promotion manager of Philip H. Harrison & Co., stated: "A great deal of psychology must be applied to get dealers and the public out of the frame of mind now predominating."

"Conditions are undeniably poor because of public fear of being laid off or having incomes cut," continued Mr. Eick. "However, those who have money might be more willing to

spend it if they were not frightened by what they hear and read."

"Confidence is the only solution to poor business conditions," believes Eastern Electrical Supply, Gibson distributor. "Consultations and conferences only serve to weaken the morale of business unless something is actually accomplished by them. Our business this year has been about the same as in 1937 for the same period, but it would be considerably improved if less prominence were given to economic disasters."

PUBLICITY BLAMED

Opinions expressed by several dealers coincide with those of the distributors.

Said Edward Miles, owner of Miles & Co. here: "Although we are going through a period rivaling 1932, our worst year, in severity, we believe conditions would be greatly improved if papers would not play up adverse business news."

"Money is not lacking, but it is practically out of circulation. We know of many people who could and would buy machines if they were not afraid they might need their savings for some emergency."

One of the dealers reporting satisfactory sales was Aladdin Oil Burner Corp., handling a number of makes of refrigerators. President Morris Pinnas said: "Sales for this year surpass those of the corresponding period in 1937. We believe there will be still more business, if economic stability is restored."

CONFIDENCE NEEDED

Reporting sales as disappointing, T. H. Fulton, sales manager of A. J. Orbach, Inc., Frigidaire dealer in Plainfield, with branches here and in Elizabeth, declared: "Until money begins to circulate more freely, we can expect little gain in sales. This January our sales did not measure up to those of 1937, and we see no immediate improvement until outside conditions pick up."

"Sales have decreased considerably from those of the last few months of 1937," commented W. S. Hanks, owner of H & H Radio Service, Rahway. "Buying power has unquestionably diminished, but there still are enough prospects who would buy refrigerators if they were not held back by fear of needing their reserves for some other purpose."

Charles Van, of Van Bros., Westfield, stated: "Business is virtually at a standstill. While we anticipate an increase during the coming season, we feel normal conditions will not be reached until something is done to get the public out of its present frame of mind."

"Present sales leave much to be desired," declared John C. Evans, treasurer of Tuttle Bros., General Electric dealer in Westfield. "There is too much holding back of money on the part of those who still have it."

Wiring Program Extends Market, Schaefer Says

MILWAUKEE — Declaring that "the saturation point is nowhere in sight," E. H. Schaefer, head of the E. H. Schaefer Corp., Wisconsin distributor for General Electric appliances, predicts that sales of electric refrigerators will continue to show a large increase in 1938. The Schaefer company increased its sales by 101% last year.

Additional wiring of old homes and farm homes every year is considered by Mr. Schaefer to be an important factor in the larger market for household appliances.

Dealers Plan Exhibits At Lewistown Exposition

LEWISTON, Me.—Electrical appliance distributors and dealers in this vicinity are preparing displays for the annual Pageant of Progress and Home Appliance Show, to be held during the week of April 25 in Lewistown Armory.

Dealers Take All Space For Cincinnati Show

CINCINNATI—The sixth annual Electrical Progress exposition, co-sponsored by the Cincinnati Electrical Association and the Cincinnati Times-Star, will be held March 21 to 26 in Union Central Annex.

At the initial drawing for booths, members of the electrical association subscribed for all available display space.

The following distributorships have contracted for one or more booths at the exposition:

Appliances, Inc.; Auto Rad Supply Co.; B. & B. Electric Co.; E. L. Chambers Co.; Cincinnati Gas & Electric Co.; Crosley Distributing Corp.; Fisher-Aeschbach Co.; Frigidaire division, General Motors Sales Corp.; Gies, Inc.; G-E Supply Corp.; Graybar Electric Co.; Griffith Distributing Corp.; Harten-Knodel Distributing Co.; Johnson Electric Supply Co.; Krauss Distributors, Inc.; Maytag Co.; Schuster Electric Co.; Silvray Lighting, Inc.; Long Island City, N. Y.; Tagel Refrigeration Co.; Tri-State Distributing Corp.; York Supply Co.

Madison, Wis. Store Has Appliance Dept.

MADISON, Wis.—Burdick & Murray has opened a new household appliance department in the basement of its department store on the Capitol Square here. The store features Maytag washers and ironers and Grunow refrigerators and radios.

Commercial Department Of American Sales Headed By Culver

DAYTON, Ohio—American Sales Co., Westinghouse distributor in this territory, has announced appointment of E. C. Culver, formerly with Westinghouse Electric & Mfg. Co., as supervisor of its commercial refrigeration operations.

The distributorship also has announced appointment of the following six new exclusive dealers in this area: John Albers Co., Fort Laramie; Bailey Hardware Co., Ansonia; Siler Furniture Co., West Manchester; Green Electric Service, West Liberty; Hayes Radio & Electric Co., Bellefontaine; Ellis Electric Co., Degraff.

As opening gun of its spring campaign, American Sales Co. held a two-night sales training course for dealers and salesmen in the nine counties which it covers.

Refrigerator sales have shown an encouraging increase during the past two weeks, the company says, and future prospects seem bright, especially in sections where Rural Electrification Administration projects have been completed.

Jordan Electric Is Crosley Distributor In Topeka

TOPEKA, Kan.—The Jordan Electric Co., of which J. R. Woodhull is manager, has been named distributor in Topeka and vicinity for Crosley electric refrigerators.

Piedmont Dealers Get Westinghouse Plans

CHARLOTTE, N. C.—More than 200 dealers and salesmen of the Piedmont Carolinas area were guests of Westinghouse Electric Supply Co. here recently for a showing of the 1938 line of refrigerators, electric ranges, laundry equipment, water heaters, small appliances, and fans.

Dealers in the Charlotte territory registered an increase in electric range sales in 1937 over the previous year of approximately 100%, announced W. A. Emerson, manager.

Among Westinghouse officials taking part in the meeting were Fred Lucas, Atlanta, Ga., range and water heater supervisor for the southeastern district; W. N. Kennon, sales promotion manager; E. J. Eckert, Mansfield, Ohio, range and water heater supervisor; J. H. Loble, Atlanta, southeastern sales promotion manager; J. V. Russell, Charlotte, refrigerator supervisor.

Lincoln Sales Holds Group Meetings

BALTIMORE—Group meetings for dealers and their salesmen were held during February by the Lincoln Sales Corp., Crosley distributor, under the direction of C. Howard Buchwald, president.

Twenty men from Littlepage's Furniture Store, Baltimore; Hargett & Co., Frederick, Md.; McReady Furniture Co., Annapolis, Md.; and Eckenrode Tire Co., Westminster, Md., attended the first meeting.

3,700,000
REFRIGERATORS
can't be wrong!

★ Yes, that's the huge number of refrigerators in which Balsam-Wool Fibre SEALED Slabs have been used as insulation. In homes from Maine to California—from Minnesota to Florida—you'll find the proof that Balsam-Wool Fibre SEALED Slabs assure lasting insulation efficiency and customer satisfaction.

And that's only half the story of why Balsam-Wool Fibre SEALED Slabs enjoy an ever-growing popularity. The other half is that Balsam-Wool Fibre SEALED Slabs are economical for the cabinet manufacturer to use. They are made on special licensed machines in the manufacturer's own plant . . . made to his exact specifications and subject to instant change. The manufacturer saves in inventory . . . in production cost . . . in floor space.

Let us show you why Balsam-Wool Fibre SEALED Slabs are a better insulation for your refrigerators. Complete facts are yours for the asking.

WOOD CONVERSION COMPANY

Refrigeration Sales Division

360 North Michigan Avenue, Chicago, Illinois • St. Paul, Minn. • New York, N. Y.

BALSAM-WOOL
FIBRE SEALED SLABS
PRODUCT OF WEYERHAEUSER

Air Conditioning

Proposed N. Y. Law Hit Engineering Offices Of As Added Tax Burden Martin Plane Plant Get Air Cooling

BUFFALO—A bill to regulate the air-conditioning industry, proposed by State Senator James A. Garrity of Yonkers and at present being studied by the state judiciary committee, was subjected to severe criticism at the recent meeting here of the Air Conditioning Council of Western New York.

Louis A. Harding, commissioner of public works for Buffalo and former president of the council, said that the Garrity bill would mean the entrance of politics into the air-conditioning industry, with the saddling of additional taxes on the public and the ultimate ruin of the industry itself.

"I don't care how good a bill is drawn up and passed," said Mr. Harding. "It is going to cost the taxpayers a lot of money. We have had that sort of bill put on us in years past, and we could have prevented it if we had used our heads."

Walter P. Davis, executive secretary of the council, called attention to the codes adopted by the council and the American Society of Heating & Ventilating Engineers for self-regulation of the air-conditioning business.

For their own protection, Mr. Davis pointed out, contractors and buyers should see that codes are made a part of all contracts for air conditioning. Inspection by the council of air-conditioning contracts would be made free of charge if desired, he added. Under the proposed Garrity bill, such inspection would be expensive.

It was voted at the meeting to sustain the council's previous action opposing the Garrity bill.

It also was announced that a sheet metal industry convention will be held in Hotel Statler here March 7, 8, and 9.

MIDDLE RIVER, Md.—Paul J. Vincent Co., Baltimore refrigerating engineering firm, is installing an air-conditioning system in the new engineering building of the Glenn L. Martin Co., airplane manufacturer, here.

Each floor of the three-story-and-basement building has an area of 23,000 sq. ft. Every floor is divided into four zones and is equipped with two air-conditioning units, each unit supplying both warm and cold air for two zones.

The system is completely automatic, and private offices as well as other sections of the building are equipped with separate controls. Air cooling is provided by 250 tons of refrigeration equipment.

To eliminate use of city water for condensing purposes, an evaporative condenser has been installed on the roof of the building. This condenser uses water over and over again, water being picked up from a pan and sprayed against copper coils through which gas from the refrigerating machines is pumped.

Temperature of the water is kept down to outside wet-bulb temperature by means of a fan, which pulls air through the spray and over the coils at the rate of approximately 70,000 c.f.m.

35 Installations Completed In New Orleans In Dec.

NEW ORLEANS—Thirty-five installations of air-conditioning equipment, totaling 309.75 tons capacity, were made in New Orleans during December.

Making It Easy For Prospects To Visualize Air Conditioning



Fred Cooper of the Cahn Electric Co., Shreveport, La., shows his photographic album of successful jobs to a prospect for an air-conditioning installation.

Bryant Heater Co. Opens Schools To All

CLEVELAND—Following its customary field training policy, Bryant Heater Co. is conducting a series of summer air-conditioning schools in a number of eastern and midwestern cities.

These schools are open to all interested persons, and attendance includes engineers, contractors, air-conditioning dealers' men, and gas company representatives, as well as members of the Bryant field organization.

Instruction in these schools is built around application of the Bryant Silica Gel dehumidifier to comfort and industrial air-conditioning installations, but also deals with the fundamental principles.

The schools are being conducted by C. F. Cushing, H. W. Heisterkamp, and Bayard P. Fonda.

'Be As Little Like An Engineer As Possible' To Sell Air Cooling, Says Louisianan

SHREVEPORT, La.—By recognizing that the engineer-salesman marketing air conditioning must learn to talk the language of the salesman, in expressing a highly technical problem, Fred Cooper, sales engineer for Cahn Electric Co. here, has been able to attain a substantial increase in the company's air-conditioning business.

Mr. Cooper insists that no small part of the growth of the company's air-conditioning sales during the past year has been due to use of certain practical sales aids.

Significant among these is the individual plan. "We try to have a definite plan, in understandable form, for the customer before we close the deal," Mr. Cooper says.

'FEEL AT HOME' IDEA

"This is a plan without too much detail of a technical nature, but with details which the customer will recognize easily. Thus, if you will leave out certain features of machinery installation on the customer's plan, which he will not readily comprehend, but put in doors and windows where he will recognize them as part of his own establishment, you will make him feel much more at home with the project.

"This is really an important piece of psychology, in presenting the project to the lay customer, who is usually a business man without technical knowledge.

"The written proposal, in the same way, must be made as individual as possible. We do not use a form-type proposal—the mimeographed statement of the project. This will dampen the prospect's enthusiasm almost as quickly as any misstep a salesman can make.

KEEP PROPOSAL 'INDIVIDUAL'

"Any customer knows that an architect draws up an individual plan of a house he is going to build for the customer; he feels that, with the money he is asked to invest, he is entitled to a statement of his own air-conditioning proposal, and not a general one.

"Occasionally, of course, we use the same proposal which may have applied to another customer, but this is written up separately, as it applies to the new job.

"The individual plan and proposal, of course, can be used without too great expense burden only if the salesman works carefully, to determine first whether his customer is a likely prospect. This in itself is a knack difficult to acquire, but well worth studying."

An unusually successful device for selling air conditioning during the early contact stages, Mr. Cooper has found, is the use of a photo album. Mr. Cooper's album contains snapshots of installations already made, each job being given its own pictorial history. Some of the shots are general views of the establishment; others show the purchaser standing outside his store.

The interest such an album arouses

is surprising, Mr. Cooper says. It tells the story of what he wants to do in terms which make technical discussion altogether unnecessary.

"I do not have to use a lot of words which the customer doesn't understand," he explains. "I simply turn to the proper page in the book, tell him that here is a job having certain features just like the one we want to put in for him. If he objects to any particular phase of the suggested job, I can turn at once to another part of the album, and show him a picture of a job which has just the feature he would like to have.

"In discussing air conditioning it is impossible, owing to the complexity of the subject, to give a clear impression of the whole installation. Any job is an individual one, and the customer is quickly confused by the variations in details which we have to offer.

"But if we can piece the thing together from actual evidence of work done in the past, he has a great deal more confidence in what we are doing."

WHAT ALBUM DOES

The album also contains clippings from sales folders which explain, in the language of the expert advertising writer, the sales points of the air-conditioning system being promoted. These, too, have been a great help in reducing air conditioning to understandable terms for his customers, Mr. Cooper finds.

"It really makes no great difference how many people start out to sell air conditioning for a firm," Mr. Cooper insists. "A single salesman using highly individual effort, who studies salesmanship to go with his engineering, can do the job almost as well.

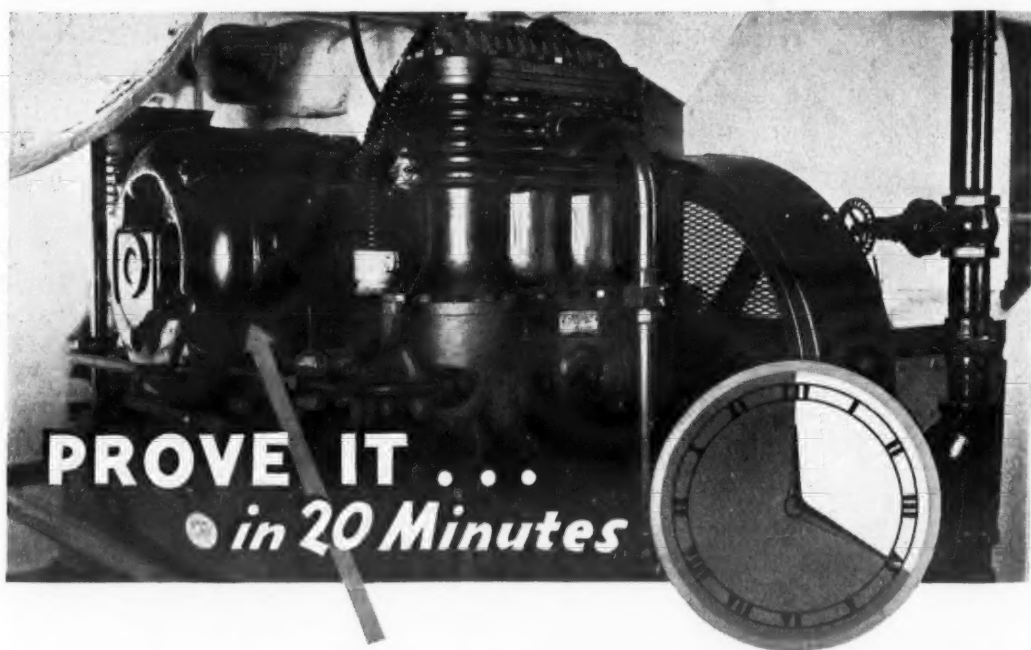
"There is unquestionably a close relationship between engineering and selling. Very few engineers will give much time to salesmanship problems; but the air-conditioning engineer dealing directly with the consumer will do much better if he will.

"You have to present things simply; you have to avoid technical words; more and more I have come to dropping technical discussion of the subject altogether.

"Many dealers, financially strong and well established in their communities, have been bitterly disappointed when they found that they couldn't market air conditioning as one can refrigerators. The engineer-salesman can do much to make up for this difficulty.

"The engineer simply has to forget that he is an engineer while selling, except when the occasion arises which will permit him to jump over the fence and become the engineer again. People like to buy from their equals, and the less a man says about his own engineering ability when selling to the customer, the better off he will be.

"The salesmanship problem is the same the world over; you must make people feel that they are doing their own buying—and not being sold something."



PROVE IT ... in 20 Minutes

This is THE MOTOR for "FREON" REFRIGERATION COMPRESSORS

More and more, industry is calling this the "Freon" Compressor Motor—because, time after time, it has been definitely proved through long periods of severe service on the toughest jobs that Century Motors WILL:

- (1) Start the heaviest loads—QUIETLY
- (2) Accelerate them smoothly to full speed—QUIETLY
- (3) Keep them running without interruption—QUIETLY

In 20 minutes, by the clock, you can satisfy yourself of these facts... You can see the value of Century's broad experience and thorough knowledge of the installation requirements... You can realize the results of Century's close co-operation with designing engineers of some of the country's leading manufacturers of Air Conditioning equipment... In short, you can easily determine why thousands of Century Motors are in service in all branches of Air Conditioning—driving large and small units with constant satisfaction.

Available in sizes 1/6 to 600 Horse Power—Single, 3-Phase and Direct Current... Conventional and Hermetically Sealed-in Types.

Get a demonstration of Century Motor performance... Prove Century's definite value to you... Write our general office for further particulars, or call one of our branch offices—conveniently located in principal cities.

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Mo.
Offices and Stock Points in Principal Cities



They Were Lucky—and Smart



Five thousand dollars richer as first prize winner in the Kelvinator contest for members of the household appliance industry, is Clinton J. Morris (left) of Bohman-Warne, Inc., Hagerstown, Md. Second prize winner is A. S. Woodward (right) of the Bourbon Sales Agency, Baltimore. Mr. Woodward won \$1,500.

Airtemp Placing Emphasis This Year On Unitary Systems & Specialty Selling

(Concluded from Page 1, Column 3) 5-ton "unitary" store-cooling unit introduced at the meeting, and on mechanical features of the Chrysler radial compressors.

Development of unitary air-conditioning equipment has opened up new profit opportunities for dealers, declared J. C. Chambers, regional manager of Airtemp, Inc., Dayton, Ohio.

"While the contracting business has long been a narrow-margin affair, the trend toward package air-conditioning equipment places a large part of the business in the merchandising field, where a satisfactory mark-up can be maintained," Mr. Chambers continued.

"Any product of a package character can have an advertised price tag. The public can be educated to understand that a certain air-conditioning unit costs so much. There will be no necessity for close-margin operating with Airtemp unitary equipment."

Outlining the purpose behind the introduction of the 3-ton self-contained cooling unit last year, Mr. Chambers mentioned the prospects "along main street" who were ready to purchase air-conditioning equipment as soon as something could be developed to fit their needs.

To show that the market for large air-cooling equipment is relatively small, Mr. Chambers pointed out that there is only one good hotel per 100,000 people; one department store per 250,000 people; and one large theater per 100,000 people.

In contrast, however, there is one drug store for every 125 families.

It was observed that most drug stores were alike in size, essential layout, and interior equipment. The majority have some kind of wall fixtures, 19 to 21 inches deep, and are of an average height.

The problem, then, was to design a unit to fit the average-sized small

store or shop, which had a known load of approximately 3 tons, and which would harmonize with the appearance of store fixtures.

It was not possible to get the unitary conditioners down to their present dimensions, claimed by Mr. Chambers to be the smallest in the industry, until the radial compressor was developed, he said.

The new Airtemp unitary conditioner in 5 hp. develops approximately 5 tons, handles 2,500 c.f.m. of air, is 19 inches deep, 45 inches wide and slightly taller than the 3-ton unit. Production will be under way by April 1.

In discussing sales plans for the year, Roy M. Miller, director of Airtemp sales promotion, said that "unitary equipment puts specialty-selling men and organizations into the air-conditioning business. Engineering has been simplified to the point where any good salesman can select package equipment. Dealers who are to succeed in the air-conditioning business must be merchandisers."

Quotas have been established for 1933 on the basis of one 1-ton unit for each 1,000 people in the trading area; one 3-ton unit for each 2,000 people in the trading area; one 5-ton unit for each 3,000 people in the area. In a territory of 30,000 population, this would call for the sale of 30 room coolers, 15 3-ton store units, and 10 5-ton store units.

Value of demonstrations similar to those used successfully in the sale of electric refrigeration was emphasized by Mr. Miller. "Specialty selling becomes increasingly important as unitary air-conditioning equipment is marketed," he said. "What the salesman says and does at the point of sale is of primary importance."

Details of the new radial air-conditioning compressor were covered by C. R. Neeson, chief engineer in charge of Airtemp product development.

The meeting was in charge of H. B. Orr, general manager of Airtemp Construction Corp., distributor for the state of Michigan.

Floor Plan Offered On York Room Cooler

(Concluded from Page 1, Column 3) delivery during the peak hot weather sales season.

As a step forward in the merchandising of "packaged" air-conditioning, this plan is designed to remove from the shoulders of the distributor the burden of financing his purchases of Yorkaire portable and unit conditioners, and to provide him with a means of stocking adequate quantities.

Adoption of this long-range credit structure is expected to facilitate marketing the new line, announced last month by York and designed for use in homes, apartments, individual offices and small commercial establishments.

Winners In Kelvinator Contest Announced

(Concluded from Page 1, Column 4) nagon, Mich., took the third prize of \$500.

Five additional prizes of \$200 each were awarded to the following: Harold Coggins, Kings Mountain Furniture Co., Kings Mountain, N. C.; G. R. Mann, G. R. Mann & Co., Champaign, Ill.; M. H. Myers, Myers Appliance Store, Onawa, Iowa; Bessie F. Elhart, Elhart's Book & Music Store, Ashland, Ore.; and Russell L. Smith, Smith Music Co., Marshalltown, Iowa.

Kelvinator's contest was based on letters about one of three subjects which, in the contestant's opinion, would be most helpful to Kelvinator dealers.

Basis For \$1,000 Water Heater Prize Announced

(Concluded from Page 1, Column 5) gram will be given major consideration.

The plan must include either two monthly advertising promotions, or one two-month promotion.

5. Dealer cooperative activities. In their entry for the award, utilities must show both 1937 and 1938 sales figures of electric water heaters in their territories, the estimated increase in saturation during 1938, and a complete description of the plan followed and the dealer cooperation obtained.

Bucher Is Westinghouse President-Elect

(Concluded from Page 1, Column 4) have been with Westinghouse for many years. Mr. Bucher began his work with the company on Sept. 1, 1909, in an assembly aisle at the East Pittsburgh, Pa., plant. He worked successively as a coil winder, as a worker in the transformer assembly, and as a motor generator tester.

Born in Sunbury, Pa., Mr. Bucher was graduated from the high school there before he entered Pratt Institute, Brooklyn, to study machine design and electrical engineering. His first job was with Westinghouse.

Two years later he was transferred, as a clerk, to the then relatively unimportant export department of the company, which has since become the Westinghouse Electric International Co. Interested in the problems of electrification in Japan, he pushed the work there with the result that Westinghouse had a major part in modernizing that country.

In 1920 he was appointed assistant to general manager of the Westinghouse Electric International Co., and a year later became assistant general manager. This position he held until 1932, when he was elected vice president and general manager.

In 1934 he was elected president and general manager of the International company, and the following year became a vice president of the parent company. In 1936 he was named executive vice president and a director of Westinghouse Electric & Mfg. Co.

Three Models In Delco-Frigidaire Stoker Line

(Concluded from Page 1, Column 2) for year-around conditioning, covering both heating and cooling. Marketing of the new coal stokers will be in effect nationally in May.

Two of the three models are designed to serve residences using not over 18 tons of coal annually. The third is for residences where the coal consumption is not more than 30 tons annually. The three models blanket the residential market.

Engineered in the General Motors and Delco research laboratories, the new stokers are designed to burn a wide variety of low-cost soft coals. Automatic air controls provide increased combustion efficiency, and a heavy-duty transmission insures an agitated fuel bed with a minimum of electric power consumption, it is claimed.

The new stokers are being built by the Delco-Appliance division of General Motors at Rochester, N. Y.

Mexico City Trips, Bonuses Feature Kansas City Drive

(Concluded from Page 1, Column 5) aire, General Electric, Hotpoint, Kelvinator, Norge, and Westinghouse electric ranges.

Special cash bonuses of \$5 per range, and a grand prize of a free trip to Mexico City for every salesman or dealer selling at least 50 ranges during the drive, were announced.

Plenty of power, but no hum.

Free operation . . . strong kick-off spring.

Needle and seat non-magnetic and non-corrosive.

Durable . . . maximum wear resistance.

Body, special brass casting same as used in expansion valves.

Orifice sizes $\frac{3}{16}$, $\frac{7}{32}$, $\frac{1}{2}$ and $\frac{5}{8}$.

Supplied with female pipe threads, S. A. E. Fittings or sweat connection with New Flange and Tail Pipe Assembly.

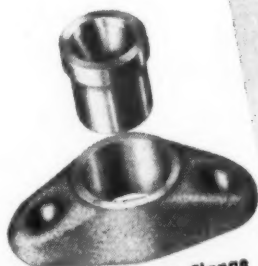
Easier to install . . . more flexible.

Cheaper to stock . . . fewer items needed.



No. 683 R3
Orifices $\frac{3}{16}$ and $\frac{7}{32}$

DETROIT SOLENOIDS



Interchangeable Flange and Tail Pipe



No. 686 assembled with 782 Strainer.
686 Orifice sizes, $\frac{1}{2}$ and $\frac{5}{8}$

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FOR DESCRIPTIVE BULLETINS

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(DU PONT METHYL CHLORIDE)

For quick cooling, ice cream cabinets and milk coolers are equipped with ARTIC-charged units. In servicing these units, do as the manufacturers have done—use ARTIC (du Pont Methyl Chloride).

Stocks in standard containers in principal cities for prompt delivery.



E. I. Du Pont de Nemours & Co., Inc.
The R. & H. CHEMICALS DEPT.,
Wilmington, Del.

ARTIC THE PREFERRED METHYL CHLORIDE FOR SERVICE WORK

Commercial Refrigeration

Weber Has Self-Contained Case For Frozen Products

LOS ANGELES—Production of a self-contained display case for frozen fruits, vegetables, and meats, designed by staff research engineers as a modern commercial refrigeration unit to meet the requirements of the frozen food retail industry, has been inaugurated by Weber Showcase & Fixture Co., Inc.

First shown at the recent National Canners' Convention in Chicago, the new Weber case incorporates a number of features intended to improve display and increase sales.

Five plates of glass in the front display eliminate fogging or sweating, which, with the bright illumination from the indirect lighting system, makes for extremely clear display of the food.

Being completely self-contained, the case is portable and may be re-located at the storekeeper's wish.

A new slant back makes the lower storage compartment more readily accessible.

Heavy insulation is used throughout to assure maintenance of low temperatures, and provide constant refrigeration safety.

In addition to being a display and storage cabinet for frozen fruits, vegetables, and meats, the new Weber case also can be utilized as a display and storage case for ice cream.

Columbus Firm Opens City Locker Storage

COLUMBUS, Ohio—Federal Cold Storage Co. recently opened the first public "zero cold" storage locker system to be established in Columbus at its Naghten St. plant here. S. A. Mathews is manager of the plant.

To make possible installation of the locker system, which numbers 1,000 units, one wing of the company's building was remodeled at a cost of \$10,000. The wing devoted to the system contains 20,000 sq. ft. of floor space.

Roy R. Smith, executive vice president in charge of engineering for the company, made the installation, and plans similar units for other cities.

Massachusetts Dealer Equips Sausage Plant

SOMERVILLE, Mass.—Appliance Engineering Corp., distributor for Servel commercial refrigeration equipment in the Boston territory, has designed and installed a Servel refrigeration system for the sausage storage rooms of Eugene Rothmund Co., Inc. here.

Incorporated in the system is a Servel model WO-500 machine unit. The sausage rooms have a storage capacity of 30,000 lbs.

Delicatessen Cabinet Introduced By Tyler

NILES, Mich.—Newest addition to Tyler Fixture Corp.'s commercial refrigerator line is the model HB10 self-service dairy refrigerator, designed for the storage and display of milk, cream, cheese, butter, eggs, sandwich spreads, and other dairy and delicatessen items.

The case is designed to meet the requirements of self-service, semi-self-service, and service stores. Customers can readily help themselves to the merchandise displayed in the case, it is claimed. Three double sliding doors are provided on the top display compartment, while three swinging glass-front doors are on the bottom storage compartment.

Features claimed for the new refrigerator are:

Welded steel construction, adjustable shelves, double-glass sliding doors, porcelain front, and heavy coiling.

'Z' Poultry Freezers Now Standardized

NEW YORK CITY—Full standardization of the "Z" refrigerating units for New York dressed poultry has been announced by the Z Pack Corp., owner of the "Z" quick freezing process originated by M. T. Zarotschenzeff, vice president and technical director of the company.

Mr. Zarotschenzeff recently returned from a seven-month world tour which he made to study methods of food preservation in various countries. He intends to present his impressions in a series of magazine articles and eventually in a book called "Refrigeration Around the World."

The Z Pack multiple deck freezing machine is an insulated tunnel through which boxes of poultry move on conveyors on three different levels at a predetermined speed.

External dimensions are: height, seven feet; width, four feet; length, 34 feet. The unit is elevated from the floor by a number of short pipe legs.

Operation of the conveyors is automatic. Capacity is 400 head per hour.

Dressed chickens or turkeys are placed in boxes and started on the conveyors at one end of the machine. When they emerge at the other end, they are ready for a finishing table.

Whether Milk Cooler Should Build Ice On Coil Is Question Of Usage

BY K. M. NEWCUM

C. H. Roberson, Inc.
29 Court St., Freehold, N. J.
Feb. 16, 1938

Service Editor:

Recently we had quite a discussion on refrigeration efficiency of the coils used in wet storage for cooling milk. Some claim that it is necessary to build an ice bank on the coils, while others claim that it is not necessary. We are particularly anxious to have this question answered by someone besides a manufacturer's representative.

In milk cooling it is necessary to remove the animal heat from the milk in less than an hour after milking. To assist in cooling the milk rapidly we have been using agitators and in this way eliminating the use of an aerator.

If you have any bulletins on the process of milk cooling we would appreciate receiving them.

C. H. ROBERSON, Inc.

Answer: An accumulation of ice on the coils within the water bath reduces the heat transfer efficiency of the coils. The greater the accumulation, the greater is the reduction in heat transfer efficiency. Ice on coils insulates them from the water and consequently retards the flow of heat from the water, through the coils to the refrigerant or brine within the coils.

However, the problem is the cooling of the milk in the required time, and not necessarily the efficiency of the coils. There are cases where an ice bank is necessary and cases where an ice bank is not necessary. It depends entirely upon the design and capacity of the refrigeration system.

WHERE ICE BANK IS NOT REQUIRED

If the coil surface (amount of coil) in a wet storage milk cooler is sufficient, and the condensing unit has the capacity to cool the milk within an hour without accumulating ice on the coil, the highest possible condensing unit and evaporator efficiency will be obtained.

With this ideal condition the large amount of coil surface will allow the coil to operate at a temperature near that of the water. Because of the high coil and refrigerant tem-

perature the condensing unit will work at a high suction pressure. The higher the suction pressure the higher the efficiency of the condensing unit.

With this design of system a condensing unit would be required which has the capacity to remove all of the heat from the milk necessary to cool it from animal temperature to around 50°, within one hour.

In other words, a very large condensing unit and considerable evaporator surface would be required for the one-hour cooling period. If a new supply of warm milk were put into the cooler at one-hour intervals, then the capacity of this type of system would be necessary and justified.

WHERE ICE BANK OFFERS ECONOMY

If, however, only two one-hour cooling periods per day are required, the first cost of such an installation would be prohibitive, for it would not be economical to tie up money in such large equipment to do only two hours work per day.

Economy can be effected by using a smaller condensing unit and allowing it to operate several hours per day, building up an ice accumulation on the coils.

If two milk cooling periods per day are required (one in the morning and the other in the evening) the condensing unit and coils could be figured on the basis of 16 hours running time under maximum load conditions.

After the cooling period at night the condensing unit would operate approximately three fourths of the time during the night. During this time an ice accumulation would be built up on the coils.

HOW MACHINE OPERATES ON SUCH A CYCLE

During the morning cooling period the machine would operate continuously for the one hour and at the same time refrigerating effect would be gained by the melting of the ice from the coils and the warming up of the water.

Following the morning cooling period the machine would again operate to reduce the water temperature, and build up an ice bank on the coils in preparation for the evening cooling period.

Cooling milk from animal heat to 50° or below within one hour requires a rapid transfer of heat from the milk to the cold water and from the water to the refrigerant or refrigerant and ice in case of an ice storage or reserve system.

AGITATING WATER GIVES FASTER HEAT TRANSFER

Agitation of the water and also the milk results in more rapid heat transfer because the effect of heat transmission by convection as well as by conduction is utilized. Therefore, the use of agitators increases the overall efficiency of the system and decreases the period required for cooling.

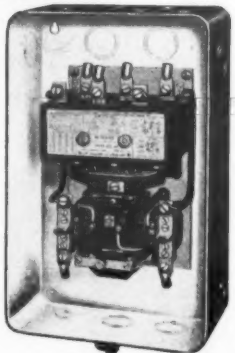
It should be pointed out that responsible manufacturers of milk cooling equipment know all of these facts and have equipped their representatives with reliable data for figuring almost any kind of a milk cooling job. The information they have is generally based upon efficiency tests conducted on the type of equipment best suited for the type of job involved.

Manufacturers of milk coolers are listed on page 77 of the 1938 Refrigeration and Air Conditioning Directory. We suggest that you write directly to these manufacturers for bulletins on milk cooling.



"Look, he always wanted a white bathroom!"

Philbert likes the bright clean appearance of the Allen-Bradley solenoid starter. Refrigeration engineers also like the way it illuminates the starter in dark corners. They like the double break, silver alloy contacts which never have to be cleaned or filed. These contacts will last just as long as any other part of the machine. Then too, the efficient solenoid magnet closes the contacts tightly and prevents unnecessary shutdowns, even when line voltage conditions are bad. And the simple rugged construction of these starters assures long trouble-free life. Installation is unusually easy. There is an Allen-Bradley starter for every refrigeration requirement. Specify Allen-Bradley and play safe.



Bulletin 709

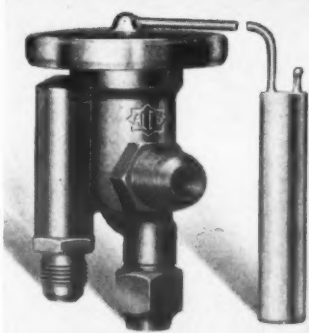
SEND FOR "THE STORY OF THE SOLENOID STARTER"

Allen-Bradley Co.
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Please send me "The Story of the Solenoid Starter."

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Company _____
Address _____

ALLEN-BRADLEY SOLENOID MOTOR CONTROL

It Will Pay You to See Your Jobber for ALCO'S New Low Cost Small Capacity



Check These Distinctive Features and Specifications

1. Atomic hydrogen welded power assembly that reduces failures to an absolute minimum.
2. The entire valve will stand full test pressure without injury.
3. Large and completely adequate filter area—over 134 square inches of filter surface.
4. Light weight, simple design—yet as sturdy as all the larger Alco models.
5. Available in several line sizes and capacities for both Methyl Chloride and Freon (F12).

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ENGINEERED REFRIGERANT CONTROLS



FOR HIGHEST EVAPORATOR EFFICIENCY

"TK" THERMO VALVES

Built to famous Alco standards of accuracy and trouble-free service, the "TK" incorporates all the proven advantages of Alco "T" Series Thermo Valves at a saving of 20 to 40% over previous Alco small capacity controls. The "TK" is thus within the reach of all small refrigeration and air conditioning systems—a moderate price valve for small installations.

Alco Thermo Valves have always been noted for accurate control. Alco control restricts the line of complete evaporation to the narrowest limits—utilizing the maximum amount of evaporator surface and resulting in highest evaporator efficiency.

See your jobber for complete information and specifications on the new Alco "TK" Thermo Valve.

KERO TEST

Valves and Fittings
The Standard of the Industry

Kerotest Manufacturing Co.
Pittsburgh, Pa.

Seeger Display Cases Marked By Double Overhead Coil

ST. PAUL—A new line of display cases, known as Series 20, and consisting of an 8-foot, a 10-foot, and a 12-foot model, has been introduced by Seeger Refrigeration Co.

Coils in the Series 20 models are of a new finned type. The new design and action of the double overhead coil results in a down draft which is directed away from the glass front and rear doors, thus tending to eliminate fogging and condensation.

These coils are suitable for Freon-12, methyl chloride, and sulphur dioxide. Ammonia coils can be furnished at slight additional cost.

The cork insulation of these cases is completely coated with waterproof wrapping and sealed to the case frame with hot hydrolene. Outside lighting equipment of these cases is enclosed in a continuous porcelain reflector built into a solid unit with the top of the case. The light shield has a built-in porcelain ventilator and light reflector.

Glass fronts of these cases are constructed of three thicknesses of clear and colorless glass, and are equipped with Seeger's built-in anti-frosting ventilation.

Sliding doors in the rear operate on stainless steel rollers and one-piece, hard-rubber tracks. All shelves are of the bar type and are heavily tinted.

All frames are made of kiln-dried spruce. Joints are of mortised tenon construction and in addition are glued and screwed.

Series 20 cases have all-porcelain exteriors and acid-resisting porcelain linings. Each case also has a separate dry storage compartment. Platters, work boards, and scale shelves can be provided at slightly additional cost. Service stands to match the cases also are available.

Height of all models is 50 inches, depth is 32 inches. Other specifications follow:

Model No.	Display Area Sq. Ft.	Display Capacity Cu. Ft.	Dry Storage Capacity Cu. Ft.
20-8	14.6	27.0	20.8
20-10	18.22	34.4	26.1
20-12	22.42	41.8	31.3

4 Styles Of Counters In New Bally Line

BALLY, Pa.—Four styles of display cases, each including four single and double-duty models, are included in the 1938 line of products recently announced by Bally Case & Cooler Co.

Also announced are custom-built refrigerators, including a reach-in cooler, a walk-in and a dairy box; a service counter to match each type of display case, and a special refrigerated case for fish display and storage.

Construction features incorporated in all models include: 3-inch Armstrong sheet cork insulation with 1/2-inch Armstrong Temlock on each side of each sheet; triple-pane front window, panes being spaced 3/4-inch apart; non-glare illuminating system with double porcelain exterior reflector; complete set of porcelain platters; four-coat vitreous porcelain cabinet finish; factory-installed Fedders' coils tubed ready for valve attachment; automatic light in storage compartment; stainless steel lining in storage compartment; rubber doors and tracks; light switch with convenience plug; chromium-plated solid brass hardware.

Coils are installed in the top of the interior, permitting natural down-draft circulation of cold air.

The four styles are listed as Series 36, for the combination grocery and meat store; Series 42, for the fresh meat department; Series 363, for the delicatessen department, and Series 440, for the small food store in which the case also serves as a counter.

Swinging doors on the display compartments are available at no extra cost if preferred to the rubber sliding doors.

Bally's reach-in and walk-in coolers are built to order. Standard dimensions of the custom-built dairy box are: height, 87 inches; depth, 33 inches; length, 6 and 8 feet.

The fish case has an all-porcelain exterior, stainless steel interior tank, full-length porcelain lighting reflector, and rubber sliding doors.

7 New Cabinets and Specialty Chest In Kelvinator Line

DETROIT—Seven new cabinets, single and double-row, and a new specialty chest for small package goods are included in Kelvinator's line of ice cream storage equipment for 1938, announced by Edward R. Legg, national direct sales manager of the Kelvinator division of Nash-Kelvinator Corp.

Extra-thick insulation for operating economy is among the features carried over from last year's ice cream cabinet models, Mr. Legg said, and space-saving compactness adds to the economies thus made.

The new four-hole double row cabinet, he said, is only three inches longer than the old cabinet of similar capacity, but this year's cabinet is self-contained, whereas the former model was only a holding cabinet, the compressor being installed remotely.

On the eight models in this year's Kelvinator line, seven are of chest-type construction. These are the two, three, and four-hole single-row cabinets, and the four, six, eight, and 12-hole double-row cabinets. In these units, the condensing unit located under the short sleeve provides maximum capacity for the floor area used, and at the same time offers the self-contained feature.

The new Kelvinator specialty chest has been christened the "Midget," because of its small size and its handiness in providing storage for small package goods, Mr. Legg said. Coated bars, stick confections, and cups may be stored in this unit.

All cabinets in the line are fitted with tightly-fitting stainless steel tops, and cabinet housings are reinforced at all corners.

M. J. Steven Heads Sales For Air Comfort Corp.

CHICAGO—Melvin J. Steven, former manager of the Airtemp division of Sidles Co., Lincoln, Neb., has joined Air Comfort Corp., Chicago Carrier distributor, as director of sales.

For Eskimo Pies



An innovation in Kelvinator's 1938 line of ice cream cabinets is this "midget" specialty chest for small package goods. It is particularly handy for coated bars, stick confections, and other items of like nature.

Puro Filter Introduces '38 Water Cooler Line

NEW YORK CITY—Three new small, electrically refrigerated water coolers have been announced by Puro Filter Corp. of America. Listed as type NS, the new line consists of a standard pressure cooler with faucet, a bottle electric cooler of the same size, and a pressure bubbler cooler with a china top.

All three coolers are 41.5 inches high and 15 inches square. Cabinets are of steel construction, finished in baked enamel. Valves and faucets are of heavy brass, chrome-plated. Standard condensing unit is used.

Low side is of special Puro design, developed to give practically instantaneous cooling and prevent any water contamination. Reserve capacity is approximately one gallon of chilled water. Cooler has a capacity of about two gallons per hour.

Cabinets are so constructed as to permit installation of the Puro "Filter-Purifier" inside the cooler.

Servel Commercial Dealer Starts Trend To 'Store Streamlining' & Reaps Profits

PITTSBURGH—The current trend toward "streamlining" store interiors being followed by food merchants in western Pennsylvania is claimed to stem back to a campaign begun a year ago by J. W. Klein, president of Pittsburgh Refrigeration Co., Servel distributor here.

Mr. Klein decided to sell the merchants in the Pittsburgh area on the idea of improving the appearance of their establishments, rearranging stock, and brightening the interior with modern, "streamlined" fixtures.

One of his first prospects was the Dickler Market at Mount Lebanon, a prominent food store which he believed other merchants would try to emulate. Together, Mr. Klein and Mr. Dickler studied the latter's store.

Mr. Dickler gave the distributor permission to redesign the interior completely. A perspective drawing in color was made and presented to Mr. Dickler. It pictured an attractive new color scheme, harmonizing with a special arrangement of white porcelain fixtures trimmed in black, and was so effective that Mr. Dickler asked for detailed specifications and a complete proposal.

The fixtures installed by Mr. Klein's company included a two-compartment walk-in vegetable and cheese cooler, a walk-in meat cooler, a meat display case, and a fruit display case.

The vegetable and cheese cooler,

an 8 x 8-foot cabinet, and the walk-in cooler, an 8 x 6 cabinet, have special coils connected in combination with a Servel model E-150 refrigerating machine unit. Three distinct temperatures are maintained in both coolers by means of the special coils and control valves.

The 16-foot meat display case and the 6-foot full-vision fruit display case are multiplied to a Servel model C-50 refrigerating unit. Different temperatures also are maintained in these cases.

The Servel machines are installed remotely on a concrete base. A Masonite panel board, mounted on a finished wood frame, accommodates the manifold valve, controls, gauges, service light, and similar equipment.

Exterior of all store fixtures, stands, shelves, counters, and partitions is finished in white porcelain, trimmed in black.

Counter and case tops are made of Linatop, a non-breakable acid-proof, scratch-proof material.

Wide bands of Monel metal trim the vertical surfaces and rounded corners of the fixtures. Even the floor was re-covered with material blending with the general scheme of the interior.

As a result of the Dickler Market installation, Mr. Klein has sold his modernization idea to a number of other prominent merchants in the Pittsburgh area.

Panama Chocolate Plant Installs Modern System

PANAMA, Panama Canal Zone—A 5-ton Servel water-cooled machine unit and a 5-ton Servel evaporative condenser, connected to six model HC-99B Servel Humidraft chilling units, comprise the refrigeration system installed by Rockgas, Carlos A. Muller, Servel commercial refrigeration distributor in Panama, in the chocolate dipping rooms of Gladioli Candy Co. here.

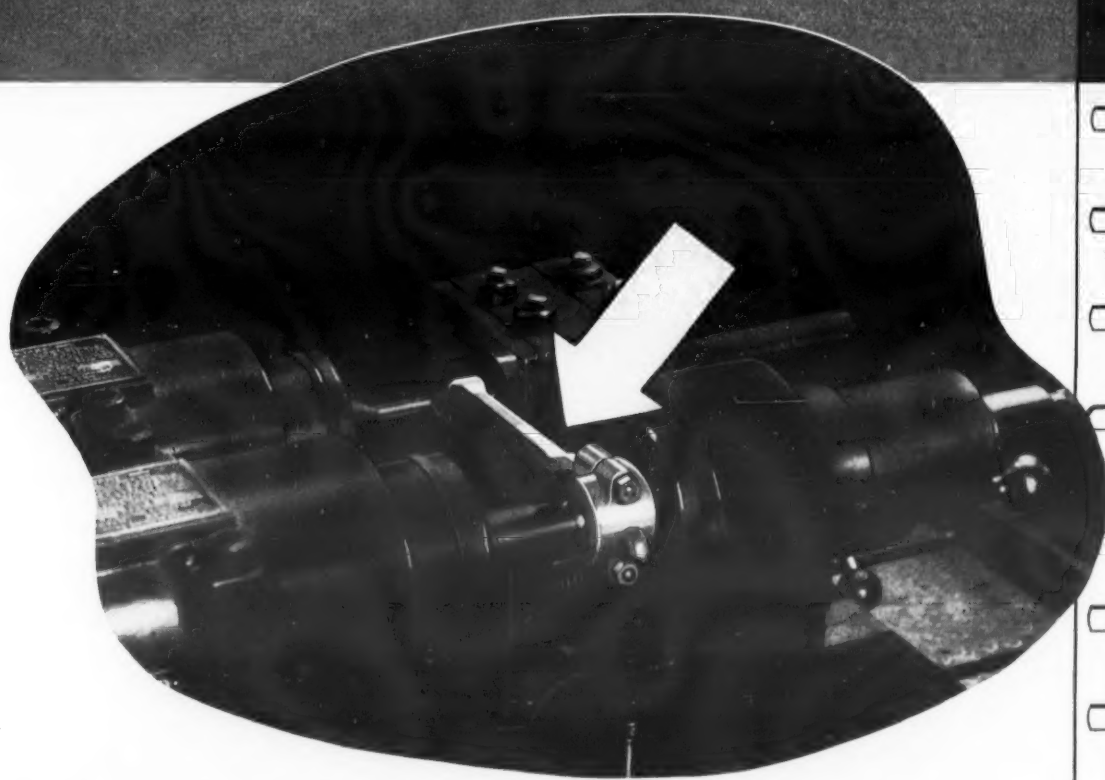
In addition to cooling the dipping rooms to 65° F., the Servel system also cools a temporary storage room between the two dipping rooms.

Pacific Fruit Express Makes New Contract

SAN FRANCISCO—A new refrigerating contract which will save the company \$250,000 in 12½ years is being entered into by Western Pacific Railroad with Pacific Fruit Express Co.

Under the new contract, Western Pacific will lease refrigerated cars from Pacific Fruit Express Co., largest railroad refrigerator car company in the world, which is owned by Southern Pacific and Union Pacific railway firms.

Ice for the cars is manufactured in a huge ice plant in Roseville, Calif.



SPLIT-HAIR ACCURACY

Think, for a moment, of a human hair.

If you could split that hair into ten equal parts, you would approach the microscopic exactness of the methods used in manufacturing Servel connecting rods.

Absolute uniformity in Servel connecting rods is insured by the diamond-boring process which controls the length between centers, the bearing diameter and the bushing diameter within one-tenth of the thickness of a human hair.

The steel-backed copper-lead bearings used in Servel connecting rods afford the smoothest, most wear-resistant working surface developed by modern science.

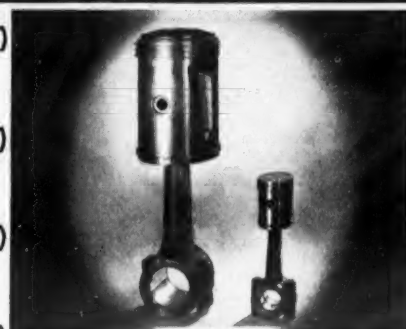
Servel commercial refrigeration and air conditioning machines are making friends for manufacturers, distributors and dealers in all parts of the world.

Your letterhead and a reference to this advertisement will bring full particulars.

SERVEL, Inc.

ELECTRIC REFRIGERATION AND AIR CONDITIONING DIVISION
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"That some should be rich shows that others may become rich, and hence is just encouragement to industry and enterprise. Let not him who hath no house tear down the house of his neighbor; but rather let him strive diligently to build one for himself, thus, by example, showing confidence that when his own is built it will stand undisturbed."
—Abraham Lincoln.

Money In the Storm Cellars

SHARPLY contrasting with the depression times of 1930-1934, the current recession is distinguished by the fact that there is plenty of money available. In the depression days, people had no cash and were burdened with debts; today they have the cash, and they can be sold labor-saving and health-protecting appliances, if the proper selling presentation is made.

Profits in 1929 were largely paper; hence, when the crash came, people were left without cash resources. Moreover, the nation was staggering under a crushing load of private debts.

Cash Position Good

Profits in 1937, on the other hand, were to a great extent cash profits. Moreover, the private debt load of the nation has been eased considerably. (It should be noted that a great portion of the debt structure has been loaded onto the government; however, the immediate cash position of the people has improved immensely.) Hence there is money in the bank, and cash in the till, to spend for air conditioning and electrical appliances.

An interesting proof of this theorem is now being made by the radio industry. At the beginning of the year the radio business found itself with enormous warehouse stocks. Prices were slashed drastically late in January, and as a result radios have been moving swiftly in the last few weeks. The industry has converted merchandise into cash.

With this money, it is reported, radio manufacturers and merchandisers will concentrate on new lines of small and low-priced sets, which seem to suit the temper of the times.

As reported on page 7 of this issue of the NEWS, a survey of dealers in the Newark area reveals the fact that people are refraining from buying largely because of fears—fears of losing their jobs, of having their wages reduced, of what the government may do next. It's not a question of trying to sell something to people who can't pay for it; it's a question of conquering their fears. In other words, it's purely and simply a job of selling.

Recession Not World-Wide

When talking to recalcitrant prospects who remember the last depression and have hidden their savings in the storm cellars, it might be well to point out that our recession is almost purely a local matter. Other highly industrialized nations are going strong.

Our export business is decidedly on an upward trend, and as we share more and more in the prosperity of other nations of the world, our own economy is bound to be favorably affected.

The forthcoming trade agreement with the British Empire is expected to rebound heavily to the benefit of the refrigeration and air-conditioning business. When Australia is reopened to American products, for example, a long pent-up reservoir of buying wants in this prosperous country (where unemployment is practically unknown) will likely be released.

Salesmanship Required

During the depression retail merchants were almost helpless in the face of adverse conditions which they could not hope to circumvent. Today's recession is a different story. The conditions are adverse, to be true; but they can be circumvented. Good selling is the key.

More than ever before, the home appliance and air-conditioning business must depend upon strong dealers with trained specialty selling organizations. Product cheapening, trick deals, or long financing terms are not the answers. The cash is available. It's almost entirely a matter of good salesmanship.

'Let Go Of My Hand'—Pershing

WHEN the going is tough, do you crave sympathy? Does someone have to "hold your hand" to keep you from giving up the fight?

If so, consider the words of General John J. Pershing as reported in last Friday's newspapers.

Believed to be dying, the General roused from a coma to find his hand being held by Sergeant C. C. Shaffer, his personal aide for the last 17 years.

"Let go of my hand," commanded Pershing. The sergeant stepped back and snapped to attention.

Remember that Pershing won his war, which happened to be the greatest war in all history, and that characteristic remark offers one good reason why.

Pershing didn't need, and would not permit, anyone to hold his hand even when he was flat on his back.

Business vs. Government Costs

1910	1937	
Four-Cylinder Packard Limousine \$5,550	Eight-Cylinder Packard "120" Five-Passenger Sedan \$1,075	80.6%
Federal Tax Payments by Michigan Taxpayers	1910.....\$5,361,998 1937.....\$323,748,961	+ 5,938%
Cost of Federal Government	1910.....\$693,617,000 1937.....\$8,105,158,000	+ 1,068%
Per Capita Cost of Federal Government	1910.....\$7.52 1937.....\$62.69	+ 735%
Public Debt of Federal Government	1910.....\$1,146,939,000 1937.....\$36,424,613,000	+ 3,075%
Per Capita Federal Debt	1910.....\$12.69 1937.....\$281.63	+ 2,120%
Which needs reforming—Business or Government?		

Detroit—Feb. 28, 1938.

LETTERS

No Substitute For Sweat & Shoe Leather

The Crosley Radio Corp.
Cincinnati, Ohio
Feb. 25, 1938

Editor:

I think your editorial, "Pulse Feeling vs. Dirt Scratching," is a "natural," and should enjoy wide reprint circulation throughout the nation's trade press.

You have, in effect, said what I have often said in a few words, that there is no substitute for sweat and shoe leather.

CHAS. R. D'OLIVE,
Vice President.

Taking Dealers Out 'Of the Ether'

Record-Courier
Third and Federal Sts., Camden, N. J.
Feb. 22, 1938

Editor:

At this late date I want to acknowledge receipt of your letter in which you stated your inability to attend the meeting of the Refrigeration Division of the Electrical League of South Jersey. I figured that you would have something very forcible to say that would take many of the dealers out of the ether.

When I read your editorial, "Pulse Feeling vs. Dirt Scratching," in your publication's issue of Feb. 16, I felt it appropriate, inasmuch as you could not attend the meeting, to give the industry one of the finest messages I have ever read in any trade publication.

I took the liberty of requesting and obtaining the reprinting of it in our publication of Monday, Feb. 21, of which I am attaching a tear sheet. You will notice at the foot of the editorial that your publication is given credit.

B. A. DE YOUNG,
Appliance Advertising Mgr.

Suggests a Button To Identify 'Dirt Scratchers'

Electric Invisible Kitchen Co.
La Salle-Wacker Bldg.
Chicago
Feb. 23, 1938

Editor:

The writer decidedly enjoyed reading your editorial in the Feb. 16 issue under the caption of "Pulse Feeling Versus Dirt Scratching."

The straight from the shoulder comparison as related therein was a cleverly composed and edited, and very interesting statement of general facts.

Of course, the writer is certain that you refer to the "chickens of the feathered variety," we both know considerable about the other kind of a "chicken," that can read newspapers, who do listen too much, sometimes on the radio; but the good Lord knows there is still another type of "chicken," (its gender questionable), that we quite often are subjected to listen to their various kinds of "pratter," as annunciated over the radio.

Especially is this true on dark and rainy night, when one does attempt to flick the dial in the hopes of hearing one, or more of the excellent programs, but lo and behold, there

belches forth a newly discovered, and much heralded voice of a "chicken" attempting to break all records on a new, low-down swing song, in a voice that re-sounds as if it had been cultivated by a diet of both corn and sand—this "chicken" would be much appreciated if all the hen houses contained radios, and, as a consequence, the entertainment could linger on "chicken"-to-"chicken"—who knows, perhaps this would induce more "chickens," of the "up and at 'em scratching kind."

By junking and eliminating the above amateurish attempt on the part of the writer to be funny, let's get back to the real "chicken" you refer to.

Your comparisons were absolutely correct. And the writer is in full accord in the way that you have splendidly brought these facts forward.

You could have gone a little farther, however, (with deep respect to the nationally known trade name Bon Ami, which does show the young chicken just out of the shell)—who "hasn't scratched yet"—and let someone else do it.

The inference, of course is, no scratching, no worms. Although, in all probability a chicken of these tender years, if by chance did see a worm, scratched up by its mother, would no doubt, fold up and attempt to crawl back into the egg from sheer fright, thinking it had been brought into the world of the Dinosaur days.

Some men selling merchandise do just that too. Their timidity in attempting to scratch for the "big buyer" floors them; are apt to figure out in their mind, how, perhaps, it would be much better to call on six small fellows, which requires oftentimes an endless amount of scratching—and often to no avail—no worms.

In any event, what I am trying to say here in short is, your editorial, I hope, has been read by all branches of the industry, and I further suggest that the REFRIGERATION NEWS provide a facsimile, in button form, that may be worn by the "worthy" of a hard-working scratching "chicken."

E. L. BENNETT, President.

Wants To Protect the 'News' From His Wife

911 Central Ave.
Hot Springs, Ark.
Feb. 15, 1938

Sirs:

Tonight when I wanted my Feb. 9 issue of your weekly publication I vowed and declared to my wife that I placed it on top of the radio last night and sure would like to read it tonight. Mrs. Barry advised that she had not seen it and furthermore if I expected her to take care of all of the papers and magazines I placed on the radio, I was mistaken for she would not spend all of her time taking care of my junk.

Of course she is right. I cart an armful home every day and if she did not dispose of it, I am afraid the home would soon look awful—but I do have books and magazines that my wife and children are taught to respect. They are on my desk in my living room in nice binders.

I thought how nice it would be to have a binder in which REFRIGERATION NEWS could be placed for future reference. Of course I agree most of the news is current also you carry information that would be most valuable to have on hand at home during the year, to outside and floor salesmen as well as department heads. We never have time to read at the office and must do our studying at home when we are making plans for the next day, week, or month.

You could go so far as furnish a reference index after, say, each 10 publications.

I believe you would greatly increase your circulation for there is no doubt in my mind that every salesman wants your newspaper and is of great value if read properly.

Just another idea, take or leave it.
EDWARD G. BARRY,
Manager, Mdse. Dept.,
Citizens Electric Co.

Answer: Regarding binders for the NEWS, we have carried them in stock for many years, but apparently you have missed occasional advertisements in the paper. The binders sell for \$3.75 each, F.O.B. Detroit. The price is a little higher than that charged by some other publications on account of the large size. The binders have heavy board covers, finished with a good quality of imitation leather and with the name of the paper stamped in gold. Thin metal strips are furnished so that individual copies of the NEWS may be inserted as they arrive each week. Each binder will hold the issues for about four months.

Also please note that we provide bound volumes of the NEWS, each volume containing the issues for four months, at \$3.00 per copy with heavy paper board covers and at \$5.00 per copy bound in cloth and leather. If you have the feeling, often experienced by subscribers who keep all their copies of the NEWS, that the papers soon accumulate into a bulky pile, please consider that a volume of good material you are getting for the price of your subscription.

Regarding engineering data, instructions on installation and servicing, sales methods, statistics, and other such material which is extremely valuable for reference purposes, we are actively developing a line of manuals and other books to make this information permanently available in the most convenient form. We have already produced a series of manuals on household refrigeration, another on commercial refrigeration, and a third on air conditioning, and we have issued the first of a new series of directories and market data books. Additional books will be announced from time to time.

In answer to your suggestion regarding an index of material in the NEWS, we published an annual index the first few years but dropped the practice as an economy measure during the depression. Furthermore, we have noticed that most people in this industry are always looking forward rather than backward. New ideas, new equipment, and new methods are developed so rapidly that no one seems to give a hoot what happened last year.

About four out of every five subscribers who make complaints to the NEWS, do so because the paper is not delivered fast enough. Any information which is more than a week old, it seems, is considered obsolete and scarcely worth reading. Hence, we have acquired the habit of devoting our efforts to fast reporting and looking ahead to see what sort of information our subscribers are going to want in the future.

Maybe someday, when the refrigeration and air-conditioning business gets nicely settled and standardized, the editors may be able to do their work more leisurely and they may find time to get all their records nicely indexed and cross-referenced.

'Every Publicity Man Should Read It'

American Exporter
386 Fourth Ave.
New York City
Feb. 19, 1938

Editor:

Allow me to add my comments to the multitude of others which you must already have received on your editorial of Jan. 26, entitled—"Industrial Publicity—And How To Get It." I am sure that every editor handling industrial news who was fortunate enough to run across the article must have derived a huge kick out of not only the manner in which the subject was covered but the fact that it was discovered at all.

Every advertising agency and publicity man in the country should read it from top to bottom.

Congratulations.

STUART B. TINSLEY,
News Editor.

United Steel & Wire Co. Makes Vapor Heads

United Steel & Wire Co., Inc.
Battle Creek, Mich.
Feb. 23, 1938

Gentlemen:

In your issue of Feb. 9, you have listed an inquiry for vapor heads— inquiry No. 3170.

Will you favor us with the name of the manufacturer who asked for this information—or write them to tell them that we also make this type of equipment. We would like to be put in touch with this prospect.

C. G. GENEBAUGH

Mr. Roper And His Product



R. F. Roper, president of the Pleasantaire Corp., with one of the 1938 Pleasantaire room coolers. Mr. Roper has been outstanding in his contention that room coolers such as his firm makes be properly known and merchandised as a "room cooler" and not as "air conditioning."

'Consumer Is Boss' Says Ruthenburg In Discussion Of Industrial Relations

EVANSVILLE, Ind. — The consumer must be recognized as the "ultimate boss" in efforts toward a solution of the problem of industrial relations, necessary if labor, management, and the stockholder, along with the consumer, are to enjoy mutual prosperity, Louis Ruthenburg, president of Servel, Inc., declared in a recent address here.

"No law can be passed to make the consumer buy products of industry against his wishes, hence industrial management must recognize service to the customer as its first duty in serving the interests of the people on the payroll," Mr. Ruthenburg declared.

ALL ARE CONSUMERS

Pointing out that the other three groups—labor, management, and stockholders—fall as well into the consumer class, he added:

"It naturally follows that if any of these groups insists upon obtaining an advantage that can be had only at the expense of other groups, such short-sighted selfishness can result only in failure of the pressure group to attain its own objectives.

"If customers force the producer to sell on terms which prevent fair wages, and which will not insure a reasonable profit to capital, the industry is destroyed; if stockholders exact profits so high the consumer and worker are jeopardized, and if labor assumes that the only limit to its compensation is measured by the amount of force it can apply, the interests of all suffer."

GOING TOO FAST

He blamed a "group of noisy enthusiasts" with trying to "speed up" evolutionary processes which were gradually bringing about desirable objectives, through controlling legislation "which fails to accomplish the desired result and upsets the evolution."

Rather than measure improvement in workers' conditions by wages and hours, he said, the standard

should be how much "the money we make will buy."

BUILDING SUFFERS

The Servel president cited the building industry as one which is suffering from undue legislative restrictions, and blamed this lagging industry for impeding recovery. He declared that the working man can buy all manner of luxuries resulting from mass production, but "restrictive rules of production" hold the cost of a satisfactory dwelling beyond reach.

"Both railway transportation and building construction have been forced to the wall by unsound practices we now propose to apply to all industry," he said. "It is reasonable to believe we must reverse the present trend or look forward to similar difficulties in all industry."

Mr. Ruthenburg declared collective bargaining to be a democratic principle, but one which may take years of education before it can be developed to serve the interests of the worker effectively. Strikes, he said, "not only present a serious matter in loss of payrolls and production, but destruction of general business activity and of public confidence, which are vastly more expensive."

"We shall all suffer, particularly the working group, while this experiment in collective bargaining runs its course, depending on the degree to which the bargaining agencies insist on arbitrary increases in wages, arbitrary reductions of hours, and restriction of output, and in the degree to which interruption of production develops from disputes."

Discussing taxes and their effect upon labor, management, stockholder and the consumer, Mr. Ruthenburg said:

"Taxes add enormously to current costs and thereby reduce the living standard. In 1938, Servel, Inc., for example, will pay taxes, including the refrigerator excise tax, amounting to almost 40% of our entire payroll."

TAXES BOOST COSTS

"While current taxes are an extremely serious element in our cost of living, those taxes which discourage the investment of capital may easily be disastrous. Under the tax on undistributed profits and the tax on capital gain, investors withdraw their support from industry and seek protection in the purchase of tax-free bonds."

"If these unsuccessful hazardous experiments in the field of taxation can be quickly discontinued; if we, the people, now insist on real governmental economy and balancing of the budget; above everything, if industrial management is permitted a reasonable degree of freedom to continue increasing productive efficiency, we gradually can reduce the national debt, bring about material relief of the tax burden, and move on toward the actual attainment of a constantly improved man."

Toon Takes On Electrolux

BAKERSFIELD, Cal.—Jack Toon Co. has become distributor for Servel Electrolux gas refrigerators in Kern county, taking over the franchise from Bakersfield Sandstone Brick Co.

Plan TVA Power For Tennessee Farms

CLARKSVILLE, Tenn.—Steps toward formation of a corporation to distribute TVA power to rural areas in seven middle Tennessee counties will be taken at a meeting here soon, Mayor W. D. Hudson of Clarksville has announced.

Mr. Hudson, who returned from Washington recently after a conference with officials of Rural Electrification Administration, said representatives from the counties will incorporate and apply for a loan of \$1,000,000 from the REA for construction of lines.

REA officials are expected to attend the meeting here. It will require three years for construction of the proposed lines, Mayor Hudson said. Counties included in the plans are Montgomery, Robertson, Stewart, Houston, and parts of Cheatham, Davidson, and Sumner.

N. J. Farm Electrification Shows Fast Growth

TRENTON, N. J.—More than 60% of the farms in New Jersey were wired for electricity by the end of 1937, said David H. Agans, president of the New Jersey Joint Committee on Rural Electrification, at the committee's annual meeting held here recently. Rural areas are becoming increasingly potent markets for electrical appliances, he declared.

In 1926, Mr. Agans reported, only 16% of the farms in the state were served by electricity.

N. Y. Fair Sets Good Example By Cooling Main Building

NEW YORK CITY—A complete air-conditioning system has been installed by Baker-Smith & Co. in the administration building of the New York World's Fair, recently completed at a cost of \$900,000 after 124 days of construction.

For effective cooling, the building is divided into five zones.

Three Trane four-row direct-expansion coils and three single-row blast coils cool Zone 1. A Frick 8 1/2 x 6 compressor circulates Freon at 41° F. through these coils. Also included in the Zone 1 equipment is a Frick horizontal shell-and-tube condenser, motor, and starter.

In Zone 2, a five-row coil provides cool dehumidified air for the allotted space. Another Frick 8 1/2 x 6 compressor, with condenser, motor, and starter, circulates 34°-Freon through the coils.

Air-conditioning unit in Zone 3 contains a five-row direct expansion coil and a three-row heating coil. The system also is equipped with glass wool filters and humidifiers. A 7 1/2-hp. Frick low pressure unit furnishes the refrigeration for this zone.

The equipment in Zones 4 and 5 includes three five-row direct expansion coils, each group being connected to a Frick 8 1/2 x 6 compressor with a 16-inch by 15 feet condenser, motor, and starter. Refrigerant is circulated at 47° F.

Jennings Directs G-E Utility Division

NEW YORK CITY—Appointment of Lawrence Jennings as regional supervisor of General Electric Co.'s appliance sales to central stations has been announced by Carl M. Snyder, G-E's appliance sales manager.

In his new capacity, Mr. Jennings will be responsible for sales of both specialty and household appliances to holding companies and the larger operating companies.

Mr. Jennings, who for the past year has been G-E's specialty appliance representative in Philadelphia, joined the G-E organization in 1935, after having been commercial and merchandise manager of Eastern Shore Public Service Co., Salisbury, Md., and Virginia Public Service Co., Alexandria, Va.

Macon, Ga. Store Opens With G-E Kitchen Display

MACON, Ga.—Promoted by the General Electric "Magic Kitchen," a radio broadcast, and full-page advertisements in the two Macon daily newspapers, a new General Electric appliance department was opened here recently at T. Bird & Co., leading department store.


Display models are grouped into complete, all-electric G-E kitchens, the entire arrangement being patterned from a lay-out styled by Sylvester Collins.

James L. Cason is manager of the new appliance department.



From a Refrigeration Service Engineer..

"You shoot your profits to pieces in no time servicing leaky thermostatic expansion valves on old installations. None of us Service Engineers can afford that kind of trouble as a steady diet. So . . .


"Switch to  Expansion Valves . . . then trouble stops!"

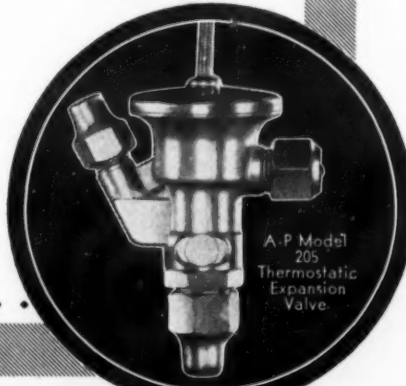
LEAKPROOF DEPENDABILITY of A-P Expansion Valves helps put your "year's warranty" jobs permanently on the profit side. The power element and system seal cannot possibly leak even under the greatest operating strain.

The word of the "Man who uses them" carries weight! Convince yourself by asking your jobber for the names of installations using A-P Thermostatic Expansion Valves.


AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY-SECOND STREET
MILWAUKEE WISCONSIN

Progressive Jobbers Everywhere Stock Refrigeration Valves and Solenoids . . .

Installation
Earl Hess Meat Market
Racine, Wis.
Cabinets
Crago Refrigerator Co.
Milwaukee, Wis.
Refrigeration Unit
Copeland
VALVES 
Purchased through
Refrigeration
Specialty Co.
Milwaukee, Wis.



DEPENDABLE

THE BYWORD FOR  CONTROLS

TEMPRITE
INSTANTANEOUS
BEER and WATER COOLERS
Detroit Michigan

MASTERCRAFT

ADJUSTABLE PAD AND CARRYING HARNESS
The most efficient and economical equipment made for handling refrigerators safely and without scratching or marring. Pad is separate from harness and both adjustable to all styles and sizes of cabinets. Efficient, sturdy, easily and quickly applied. Name of refrigerator attractively lettered on pad without charge.



Adjustable Pad, each \$9.50

Adjustable Harness, each \$6.00

f.o.b. Chicago

Write for 1938 folder and prices on pads for refrigerators, washers, ironers, ranges, radios, etc.

Pat. Appl'd for

BEARSE MANUFACTURING CO.
3015-3825 Cortland Street, Chicago, Illinois

Foreign News

Frigid Finland Climate Makes Cooling Unit Sales Difficult; Other Factors Are Favorable

By John Strohm

Editor's Note: This is another in the series of articles on foreign markets written exclusively for AIR CONDITIONING & REFRIGERATION NEWS by John Strohm, world-touring journalist.

When Finland is mentioned, Americans at once think of a little country reaching into its pockets to pay Uncle Sam the money it borrowed in the World War—an act which makes it stand head and shoulders above the debt-welching nations.

And it has other commendable points, for this little country has a sound government, and a progressive people who use more refrigeration—part of the country lies north of the Arctic Circle—than many a sweating tropical population.

FREE TRADER

Finland is known throughout the world as a free-trader, so there are no import restrictions other than small import revenue taxes on all kinds of merchandise. Duties on refrigeration materials are based upon weight, 2 marks 50 pennies per kilogram, both for household and commercial equipment.

Commercial refrigeration represents the biggest volume of sales, according to Eric Bergsten, manager of the Frigidaire division of General

Motors Nordiska. Finland and Sweden are included in this Frigidaire distribution area.

Biggest installations are made in restaurants, hospitals, regiments, and all kinds of food shops.

"I feel the commercial field leaves a sound margin of business profit," Mr. Bergsten said. Frigidaire is the unchallenged leader in this division, although there are several American manufacturers represented in Finland.

FRIGIDAIRE AND ELECTROLUX

Frigidaire and Electrolux compete strongly for the lead in the sale of household boxes. Three and 4-cu. ft. boxes are most popular.

Finland has a population of 3,750,000 with about six key cities. The purchasing power of these people has been constantly increasing since 1932 when Finland was hit right between the eyes by the depression—worst of all the Scandinavian countries. People are not particularly educated for the need of refrigerators, but the market is steadily increasing and will continue to do so for many years to come, in the opinion of Mr. Bergsten.

Temperatures vary considerably, with the mercury falling from 10 to 40° below zero, Centigrade, in the

winter time, and going as high as 25° in the summer. Due to the rigorous climate, the market for air conditioning will be small. However, there is a certain need for air conditioning in big theaters and public places where the ventilation is poor.

Frigidaire ships in complete household units from New York and also from Stockholm. For commercial jobs, they ship in compressors, coils, and various fittings, while the cabinets are made locally.

Electrolux is the chief competitor of Frigidaire in Sweden and Finland, selling many 1-cu. ft. boxes or "derby hats" as they're called.

Mr. Bergsten, commenting upon the combination merchandising of autos and refrigerators by General Motors, believes it good because "car merchandising is 25 years ahead, the psychology is the same in selling of the two, and salesmen must know their customers' mentality. Although greenhorns in refrigeration, we former automobile men took over Stockholm sales of refrigeration and in a few months sold just as many as were sold before. The peak of selling is the same and that hurts. But the main consideration is that a person must be a salesman."

Dr. Wachsmuth Joins Leipzig Fair Staff

NEW YORK CITY—Dr. Ernst E. Wachsmuth has joined the staff of the American office of Leipzig Trade Fair, Inc. as consulting engineer.

Because of increasing interest on the part of American industry in the Leipzig engineering and building fairs and in other matters pertaining to recent engineering developments in Germany, an engineering department has been opened in the Leipzig Trade Fair office here, according to H. A. Johnson, manager.

Refrigerator Ranks With Electric Iron As Favorite Appliance In Peru

LIMA, Peru—Best selling electrical appliances in Peru at present are the iron and the refrigerator, which have enjoyed a fairly large sales volume despite the fact that of the country's 5,000,000 inhabitants, only 1,000,000 represent the buying public, according to a report by Julian Greenup, U. S. Commercial Attaché here.

Intensive cultivation of the appliance market by electrical dealers has been responsible for the large number of homes equipped with mechanical refrigeration, Mr. Greenup declares.

The advertising campaign and special sales efforts of distributors had a very favorable influence on sales of refrigerators, he continues, adding that most of the demand is for units of 4-cu. ft. capacity. Commercial units also have been actively promoted.

Imports of refrigerators in 1936 were statistically appraised at the total value of approximately \$188,672, as against the 1935 total of about \$171,600. This trade was entirely in the hands of American manufacturers, says Mr. Greenup.

"Because of the available ample supply of low-wage household servants," Mr. Greenup states, "and the indifferent attitude of the housewife toward modern appliances, the market has not responded to date to the efforts made by dealers to popularize washing machines."

"Electric grills are sold in greater quantities than kitchen ranges," his report asserts. "Popular models of ranges are those having the oven beneath the cooking plates. The one to five-liter capacity water heater

enjoys a larger turnover than does that of 50 and 75 liters."

"The Cia. Tecnico Comercial Italo Peruana, formerly a subsidiary of the Lima Light & Power Co., is now making the cylinders in Peru, importing the bases and all other accessories."

"As the weather during the winter months (May to August) never becomes too cold for comfort, the heating of residences or buildings is not necessary. In addition, the natives still believe artificial heat to be unhealthful. These unfavorable factors restrict the market for heaters."

"A few offices in the large buildings, and some of the best residences are, however, heated by electricity. The houses of the staff in the mining districts are heated by electricity if power is available. Trade opinion places German heaters as leaders in popularity, particularly the 'A.E.G.' make."

Of the smaller appliances, such as toasters, irons, and the like, electric irons are the best sellers. American and German makes lead, with Swiss units increasingly more numerous.

Potential market for appliances is centered in Lima and its neighboring suburban towns. Other consuming centers of importance are Talara, Chiclayo, Trujillo, and Arequipa.

So far, a great percentage of the appliances imported into Peru have been bought by foreign residents, but the more prosperous Peruvians are gradually accepting modern appliances.

The lowered power rate established by the Lima utility for electricity consumed by users of appliances is having a stimulating effect on sales.

Political Unrest Hurts The Rapidly Growing Palestine Market

JERUSALEM, Palestine—The economic development which took place in Palestine during 1934 and 1935 greatly stimulated the sale (and consequently the importation) of household appliances and electrical equipment, but the political unrest which has existed here since the early part of 1936 has had an adverse effect on this trade, according to the U. S. consulate general here.

Value of imported electric refrigerators and refrigerator parts in 1934 was 38,687£P (pounds Palestine). In 1935 the value of imports more than doubled to reach 84,699£P. Refrigeration imports from the U. S. during 1935 were valued at 81,591£P, or more than 96% of the year's total.

Until recently, the consulate general reports, there has been little demand for separate condensing units, since nearly all refrigerators have been imported as complete units. During the past year or so, however, local dealers have indicated that a limited demand has developed for condensing units to be used in connection with commercial refrigeration installations. This trade is expected to increase, reports the consulate general.

All refrigeration sales here are stimulated by the prevailing hot climate which makes refrigeration advisable for food protection.

Imports (by countries of origin) of electric refrigerators and parts during 1934 and 1935 are shown in the following table:

Country of Origin	1934 Value in £P	1935 Value in £P
United States...	32,917	81,591
Germany	3,448	874
Great Britain ..	1,169	1,705
Other countries.	1,153	529
Total	35,840	84,699

Home Electrification Up In Czechoslovakia

PRAGUE, Czechoslovakia—Electrification of homes is proceeding quite rapidly in the larger cities and towns of Czechoslovakia, reports the U. S. consulate general here, so the demand for electrical appliances is relatively good.

This demand is largely met, however, by local manufacturers, several of which are quite large and even manufacture for export.

The domestic market is protected by import duties assessed under Czechoslovak tariff items No. 543/b and 543/c. In addition to these assessments, a 3% turnover tax is levied.

Tariff item No. 543/b provides for taxation of carbon electrodes, dry batteries, storage batteries, and cooking and heating appliances at the flat rate of 1,200 crowns per 100 kilograms. Tariff item No. 543/c, which covers other electrical appliances, provides the following scale of assessment: 25 kilograms or less, 1,500 crowns; 25 to 100 kilograms, 1,350 crowns; over 200 kilograms, 1,200 crowns.

At present rate of exchange, one Czechoslovak crown is equivalent to approximately \$0.035. One kilogram equals 2.2046 lbs.

As might be expected, in view of the conditions outlined above, appliance dealers here report that imports of such household equipment are negligible.

East Indies Gas Co. Will Sell Electrolux

EVANSVILLE, Ind.—The Netherlands East Indies Gas Co., operating 12 gas plants on half a dozen islands in the Dutch East Indies, has been named distributor for Electrolux refrigerators.

H. L. F. Rincker, manager of the company's plant at Semarang on the north coast of Java, came to Servel headquarters here to secure the distributorship.

Get your copy now!

A completely new Refrigeration and Air Conditioning Directory at a new low price:

\$1.00
per copy

★
Contents of
1938 Directory

The new 1938 Directory (No. D-1) is designed especially for the buyer of refrigeration and air-conditioning products. The data is arranged in seven sections:

- (1) Manufacturers of air-conditioning systems and equipment;
- (2) Manufacturers of commercial refrigeration and equipment;
- (3) Manufacturers of household refrigeration and equipment;
- (4) Manufacturers of parts, materials, supplies, and accessories;
- (5) Jobbers, schools, and foreign manufacturers;
- (6) Index of manufacturers' names, including street addresses; and
- (7) Alphabetic cross index of classified products.

The 1938 Directory is an absolute necessity to anyone who has the responsibility for buying refrigeration and air-conditioning products. Manufacturers are listed and classified by products. This is an entirely new Directory. Every name has been carefully checked. Each type and variety of equipment is accurately described. This 252-page book is ready for immediate delivery and the price is only \$1.00 per copy. Use the coupon below.

Business News Publishing Co.
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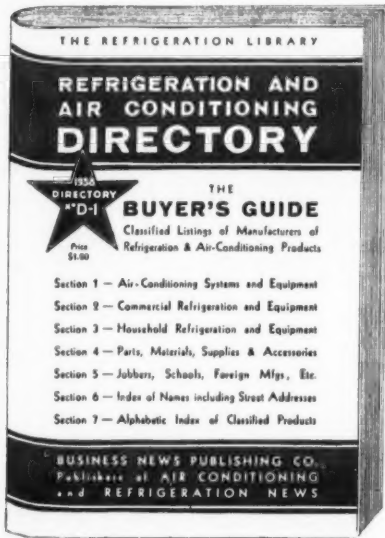
Enclosed is \$1.00. Send the 1938 Refrigeration & Air Conditioning Directory No. D-1, listing manufacturers by products.

Name

Street

City State

Note: Add 50 cents to the total amount of your order for BOOKS if shipment is to be made outside of the United States.



NEW PRODUCTS FOR NEW APPLICATIONS
Wherever it is desired to reduce heat or humidity there is a

GR
COMMERCIAL REFRIGERATION

Write for information covering the complete GR-Lipman line.
GENERAL REFRIGERATION CORPORATION
Dept. F-4, Beloit, Wisconsin, U.S.A.

Air Conditioning

Chambers Outlines a Dealer Plan For Paying Salesmen And Engineers

DAYTON, Ohio—Suggested methods of paying air-conditioning salesmen, supervisors, sales managers, engineers, and service department men are covered in a study recently made by J. C. Chambers, regional manager for Airtemp, Inc., in response to requests for information on this all-important subject by some of the company's distributors and dealers.

Suggested in the study are methods of compensation of sales staff men, engineers, and service men; bases on which this compensation should be figured; and the range of commission payments, scaled in accordance with the basic compensation method.

Because of the fact that disputes usually arise from misunderstandings, Mr. Chambers advises dealers to have an understanding with their employees in writing as to what method of payment is to be followed.

There is no necessity for an elaborate employment contract, he says. A letter, stating the basis on which a man is to be paid, is all that is required.

Dealers are advised against using any plan of compensation that may involve the books and records of the company. This is not because of any need for secrecy, says Mr. Chambers, but simply because certain things about the operation of any business are often very difficult to prove.

As an example of this, Mr. Chambers asserts that a salesman should never be paid "a percentage of profits," because at times it is almost impossible to tell what "profits" are, and how they should be determined.

Should an agreement of this kind reach the courts, the dealer might find it very difficult to prove his position, even with the aid of all the books and records of his business.

To avoid any such entanglements, Mr. Chambers advises dealers against arrangements of this nature.

Three tables have been worked out by Mr. Chambers to give air-conditioning dealers and distributors a basis for setting up schedules of compensation for an organization.

Table 1 shows the range of compensation, and the most desirable methods of payment. Drawing account losses may be materially reduced by close supervision of men, Mr. Chambers points out. The payment of an "efficiency bonus" is recommended for men in charge of departments where overhead may be reduced by careful operation, such as engineering and service departments.

Table 2 shows the basis on which compensation should be made. Salesmen should be paid commissions on their personal business only, Mr. Chambers says, and never put in a position where they have a claim on other business done by the dealer. Men in supervisory capacities should be paid on the business done by the group they supervise.

Table 3 gives recommended schedules of average commissions. These are given a range in all instances, because of differences in living costs, competitive conditions, and other factors that may affect the local situation.

Leight & Herzig Organize Columbus Consulting Firm

COLUMBUS, Ohio — Harry A. Leight and Harry L. Herzig have organized the firm of Leight & Herzig here to act as consulting engineers in air conditioning, heating, and ventilating, with offices at 16 E. Broad St.

Table 1—Compensation

Sales Staff	Salary	Salary & Com.	Drawing Account	Straight Com.	Bonus	Range
Junior Salesman			X			\$ 900-1,500
Senior Salesman			X			1,500-3,000
Sales Engineer		X				1,800-3,600
Supervisor		X				1,800-3,600
Wholesale Man		X				1,800-4,000
Dept. Sales Mgr.		X				2,400-4,800
General Sales Mgr.		X				3,000-10,000
Engineering						
Draftsman	X					750-1,200
Junior Engineer	X					900-1,500
Senior Engineer	X				X	1,800-2,400
Service						
Helper	X					750-1,200
Serviceman	X					900-1,500
Service Mgr.	X				X	1,800-2,400

Table 2—Allocation Of Compensation Expense

Sales Staff	Gross Sales	Dept. Sales	Group Sales	Personal Sales	Time
Junior Salesman				X	
Senior Salesman				X	
Sales Engineer				X	
Supervisor			X		
Sales Manager	X				
Wholesale Man			X		
Dept. Sales Mgr.		X			
General Sales Mgr.	X				
Engineering					
Draftsman					X
Junior Engineer					X
Senior Engineer					X
Service					
Helper					X
Serviceman					X
Service Mgr.					X

Table 3—Schedule Of Average Commissions

	Percentage									
Retail Salesmen	1/4	1/2	1	2	3	4	5	6	7	8
Drawing Acct. Group								X	X	X
Straight Commission										X
Sales Engineers										X
Salary & Commission			X	X	X					
Drawing Acct. & Com.				X	X	X				
Supervisors										
Salary & Commission			X	X						
Wholesale Supervisor			X	X						
Dept. Sales Mgr.		X	X	X						
General Sales Mgr.	X	X	X	X						

Note: Straight commission salesman paid higher commission than drawing account man.
Percentage varies with the community, and with competitive conditions.

'Spot Cooling' Combats Bowling Alley Slump

BATAVIA, Ill. — Air conditioning, through the use of "spot cooling," is being used to combat the "summer slump" in another amusement industry, the bowling alley business.

Batavia Recreation, Inc. here has been air conditioned with Carrier equipment by the owner, Herman Foland, who says he got the idea from pioneer efforts of movie-house owners to stimulate year-around attendance.

"Each summer, we have had the problem of stimulating interest in bowling so that we might realize on the investment in our equipment," says Mr. Foland. "A careful study revealed our patrons could be attracted to comfortable surroundings during warm days. This led to a serious consideration of the benefits that air conditioning would bring."

Mr. Foland decided to install his Carrier cooling system during the winter, in order to avoid the spring peak in the air-conditioning business.

Engineers inspected the alley layout and reported that Mr. Foland could save money by using "spot cooling"; that is, cooling the parts of the alley where bowlers and spectators are located. Thus smaller equipment was necessary and operation costs will be lower, because only the used parts of the alley are air conditioned.

Another economy was made by pumping the water for the condenser from a race which runs through the basement. The water comes from a nearby river.

York Cincinnati Outlet Names Sales Manager

CINCINNATI—E. W. Smith, formerly in charge of sales for the Bimel Co., has been named sales manager in charge of air-conditioning equipment for the Moeschl-Edwards Co., distributor of York products in greater Cincinnati area. He will specialize in the sale of York portable air conditioners, self-contained cabinet jobs and centralized systems.

William H. Crusey is general manager of the automatic heating and cooling division of the distributorship.

Modine Mfg. Co. Reports 1937 Income Of \$516,617

RACINE, Wis.—Modine Mfg. Co., manufacturer of air-conditioning equipment with plants here and at La Porte, Ind., reports 1937 net income of \$516,617, or \$5.14 per share, compared with \$459,980, or \$4.54 per share for the previous year.

A. B. Modine, president, said the company's favorable showing for 1937 largely reflected the excellent business enjoyed during the first nine months, as the final quarter did not sustain the rate of the preceding months.

Carrier Equipment Is Installed In Charlotte, N. C. Theater

CHARLOTTE, N. C. — Gastonia Mill Supply Co. installed Carrier air conditioning in the new Visulite theater here.

New Plant Erected For 'Nu-Trend' Conditioners

COLUMBUS, Ohio—A new building that will provide 10,000 sq. ft. of additional floor space to care for the increased business of the Metal Products division of Columbus Heating & Ventilating Co. is under construction, supplementing a new warehouse recently completed to facilitate shipments and production of its products.

The Metal Products division, of which Dudley B. Poling is manager, specializes in the design and manufacture of "Nu-Trend" air-conditioning and heater cabinets, blowers, combination fan filter units and air-conditioning specialties. W. H. Lauer is president of the firm.

PLEASANTAIRE

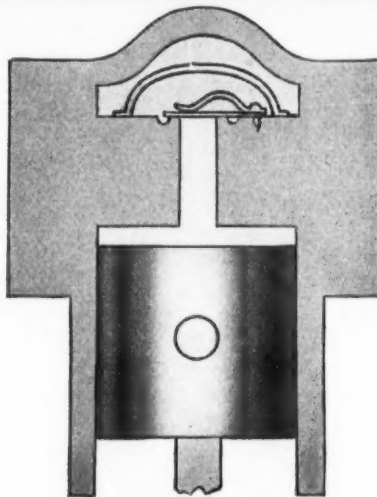
The original low cost, window-type room cooler you can sell door-to-door. Write for the "Pleasantaire Package Plan"—a sure road to air conditioning profits this summer. . . . Read what users in 40 states think about the way this mighty little gadget outsmarts Mother Nature.

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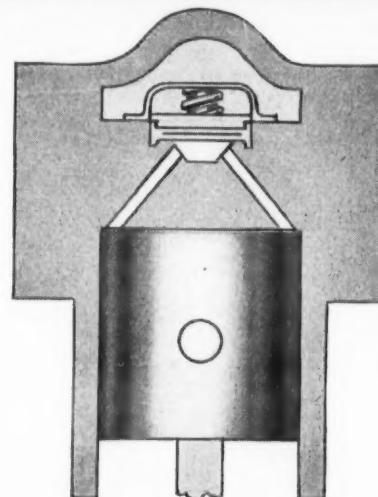
1623 Conn. Ave., Washington, D. C.

POLYPORT SUCTION AND DISCHARGE VALVES

EXCLUSIVE M & E MONEY SAVING FEATURE



SINGLE PORT CONVENTIONAL TYPE



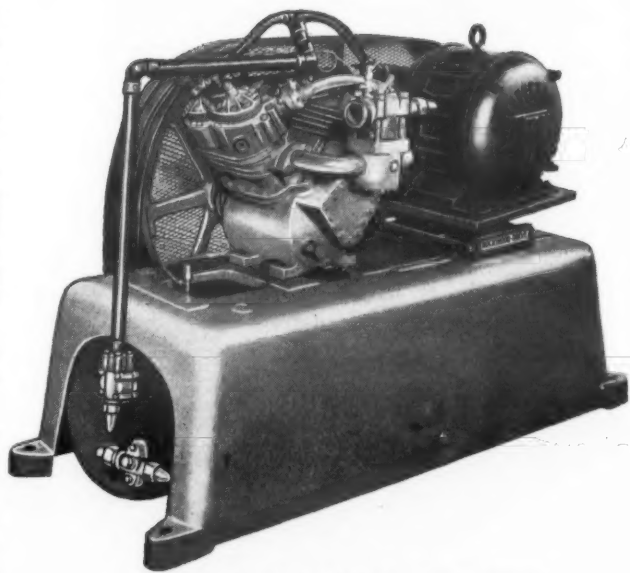
POLYPORT M & E IMPROVED DESIGN

M&E
EST. 1866

In M & E Condensing Units multiple ports, two or more as sound engineering determines may be necessary, provide quick and unobstructed passage for refrigerant through suction and discharge valves. This Polyport design is exclusive with M & E. It helps increase the volumetric efficiency of the compressor by increasing the amount of the charge. It allows the piston to go right up to the discharge valve plate, silently and without power loss. It enables the piston to push practically all the compressed gas through the discharge valve and into the system . . . provides maximum refrigeration per kilowatt of power . . . increases efficiency, lowers maintenance costs, reduces noise and vibration, saves money in various ways and in substantial amounts.

Let us tell you more about the advantages of Polyport design and the many other features developed by M & E . . . features that make these efficient, economical, long-lived units ideal equipment for every refrigeration and air conditioning need. Ask for new catalog describing 62 models, 1/4 H.P. to 25 H.P.

MERCHANT & EVANS COMPANY
Philadelphia, Pa., U.S.A., Plant at Lancaster, Pa.



A-20,000-WF (4 cylinder) 10 H.P., heavy duty, for air conditioning theatres, dress shops, and for other purposes requiring maximum capacity.

M & E CONDENSING UNITS
for the Plus Values in Electric Refrigeration

Service Methods

Methods Of Determining Amount Of Oil In Household & Commercial Systems

BY K. M. NEWCUM

Herbert Erickson Co.
613 Erie St.
South Haven, Mich.

Feb. 9, 1938

Service Editor:

I have your Master Service Manuals but cannot find in them the answer to the following question:

"How to determine the amount of oil in a system."

I believe that some of the oil has leaked out of a system I am servicing, but I do not know how much. I would like to add sufficient oil to the crankcase to bring the level up to normal.

Would lack of oil in the crankcase cause the seal to leak and squeak?

Would also like to know when the new edition of specifications will be out. Also the price of present edition.

Thanking you in advance for your assistance.

H. ERICKSON

Answer: Many references are made throughout the text of both the Household and Commercial Master Service Manuals regarding the amount of oil in various types of systems and how to determine the

amount after the system has been in operation for an extended period.

However, the question of "how to determine the amount of oil in a system" depends to a great extent upon the type of system involved.

Household Systems

As can be found in the text of Chapter 4 (condensing units), Manual No. 1 (Household Refrigeration) some manufacturers equip their compressor with an oil filler plug above the oil level. Where this type of filler plug is provided, the plug may be removed and the crankcase oil level determined by measuring with a clean rod, extended through the filler hole to the bottom of the crankcase.

Other manufacturers locate the filler plug at the exact oil level height. If the level is below the filler hole, oil may be added until it overflows. Thus the correct oil level for this type of compressor is ascertained.

Most manufacturers of household

refrigeration systems do not provide an oil filler opening in the crankcase. Reason for omitting this convenience is principally because this group of manufacturers believes that they have so carefully designed the entire system that a positive return of oil from the evaporator to the crankcase is assured. Consequently, they feel that a plug or opening in the crankcase for determining the oil level is not necessary.

Omission of an oil plug may be justified from the standpoint of cost. Also, considering the fact that modern household refrigerators are built and tested as a complete and self-contained system, it is possible by exhaustive test to charge the correct amount of oil in the system for life of the system.

Excepting leaks, the oil charge, and oil level in the crankcase of a properly designed household system should remain correct for an indefinite period.

Obviously if a leak develops around the seal or some other part of the system, an appreciable amount of oil may be lost. It then becomes necessary to add oil to compensate for this loss.

In such cases many service men estimate the amount of oil lost by the leak, and after repairing the leak, add the estimated amount back into the crankcase.

If the repair is made in the shop, all the oil and refrigerant is exhausted and a complete new charge is made. In this event the 1936 Specifications Book, which gives the proper oil and refrigerant charge for all models and all makes, should be consulted.

When a service man desires to add (on the job) the exact amount

of oil (does not wish to depend on guesswork), he may remove the compressor and drain out through the service valve port, all the old oil. He may then recharge with the proper amount of oil.

The addition of oil to the majority of household refrigeration systems is made because of a knock in the compressor, or a squeaky seal. First thing the average service man thinks of when he encounters a noisy compressor is a shortage of oil. Instinctively he adds a small amount of oil. If the knock ceases or becomes duller, his guess was right.

If the knock continues, he may add a little more oil. The experienced service man knows when he has added enough, for he will have some idea (or could know definitely by consulting the Specifications Book) as to the total oil charge of the system. He will not add more than the original factory charge.

If the addition of oil does not stop the knock or seal squeak, the service man concludes that the compressor parts are worn to a point where they should be replaced. Hence the compressor is returned to the shop for a complete overhauling.

Unless there is some logical reason, such as a knock, seal squeak, oil leak, hot crankcase, or stiff compressor, oil should not be added to a household system.

As long as the compressor runs freely and quietly the service man should not arbitrarily add oil. Oil in excess of the normal charge will be "scrubbed" through the compressor valves and cause a loud knock.

The audibility of an oil-scrubbing knock varies at different periods during the running cycle. The knock is usually more noticeable at the start of the cycle. It may reappear intermittently throughout the running period. In this manner an oil knock may be distinguished from a mechanical knock.

Commercial Systems

As pointed out in Chapter 7, Master Service Manual No. C-2 on commercial refrigeration, some commercial compressors have a bullseye in the crankcase, through which the oil level may be visibly detected.

Other commercial compressors have an oil test, or filler plug for determining the crankcase oil level.

Determining the proper oil charge to result in a permanent crankcase oil level in a commercial system is more difficult than in a self-contained household job.

For information in addition to that given in the Master Commercial Service Manuals Nos. C-1, C-2, and C-3, we refer you to two articles published recently in the service section of AIR CONDITIONING & REFRIGERATION NEWS.

One article, entitled "Servel's Service Manager Tells Why Oil in System Should Be Checked After Installation," which appeared in the Oct. 6 issue of AIR CONDITIONING & REFRIGERATION NEWS, discusses the problems involved in attempting to predetermine the extra amount of oil to add to a commercial refrigeration system and outlines a procedure for checking the oil level at regular intervals.

The other article, entitled "Oil Separators Keep Proper Oil Level in Crankcase and Solve Oil Problems," discusses additional oil problems, and outlines the use of automatic oil separators for maintaining the proper crankcase oil level, regardless of other conditions within the system.

We now have available the following specification books: (1) 1936 Refrigeration and Air Conditioning Specifications. This 512-page book has the specifications of all models, all makes and all years where reliable information was available. (2) 1937 Household Refrigeration Specifications and Convenience Features. This 64-page booklet consists of specifications data, a tabulation of convenience features and retail prices for leading makes of 1937-model household electric refrigerators.

Both of these books, if ordered at the same time may be obtained for \$3.00, postpaid in the United States and possessions and Pan-American Postal Union countries. For shipment outside of these countries, 50 cents must be added to the order to cover extra postage, handling, etc.

Published as a supplement to the Feb. 9 issue of AIR CONDITIONING & REFRIGERATION NEWS, was a 20-page specifications section, which gives the 1938 specifications on 195 models of household electric refrigerators made by 16 manufacturers who are members of Nema.

A Multiple System For Camp Cabinets Called Too Costly

The Problem—A Cheap Way To Cool 10 Boxes

Albert A. Markowitz
Castle Paint Co., Inc.
15 Park Row
New York City

Editor:

Through your publication I contacted Mr. A. F. Brewer of the Texas company who in turn referred me to you.

My refrigeration problem is that I am operating a rooming house in a mountain resort with a community kitchen containing 10 individual ice-boxes which I am considering replacing with individual electric refrigerators.

I plan to install rebuilt refrigerators with the motors removed and have a single motor and compressor unit for all 10 refrigerators. The purpose of this plan is to keep the initial and operating costs so low that it will pay to operate electric refrigeration for our short 10-week summer season.

I would ask your opinion and advice if this plan is economically practical considering the costs of equipment, installation, operation, maintenance, and repairs.

ALBERT MARKOWITZ

The Answer—Individual Units Best Solution

Answer: We question the practicability of removing the condensing units from the rebuilt individual refrigerators and using one large condensing unit for the 10 refrigerators.

First it should be pointed out that in order to connect 10 refrigerators to a single condensing unit the evaporators must be of the low side float type, or expansion type equipped with thermostatic expansion valves.

Automatic expansion valve, high side float, or capillary tube systems should not be used in multiples with a single condensing unit. Hence you would have to purchase refrigerators that are applicable to multiple use or convert them. Converting them would increase the cost, without adding to the efficiency.

You would have the expense of removing the present condensing units and making the multiple installation. Multiple installation work requires considerable expert labor as well as several dollars worth of tubing and fittings.

So far as economy of operation is concerned the saving would be negligible. It takes so much energy (electric current) to do a certain refrigeration job, whether it be accomplished with 10 small condensing units or one large one.

The maintenance cost of a multiple installation would unquestionably be less than the 10 individual jobs, provided, of course, the multiple installation was properly made. However, if the individual refrigerators are properly rebuilt, that is, they are in good condition, they should not require an appreciable amount of service for the short period they are to operate each season.

To prevent undue service at the start of the second and subsequent seasons, all the refrigerant should be pumped back into the liquid receiver or receivers at the end of your summer seasons. This work should be done by an experienced refrigeration service man. An experienced man should also be employed to put the refrigerators or multiple system back into operation at the start of the second and subsequent seasons.

Connecting all the refrigerators to one condensing unit, especially in a location remote from prompt service, presents a factor of service to your guests. If the one large machine goes bad, all 10 refrigerators are out. However, with individual units, one may be out of service, but at least the guest might borrow space from a neighbor.

Diagonal-Cutting Pliers Introduced By Bonney

ALLENTOWN, Pa.—A pair of heavy-duty, diagonal-cutting pliers known as No. B18 has just been added to the line of tools manufactured by Bonney Forge & Tool Works.

Drop-forged of high-grade, special analysis steel, these pliers are heat-treated throughout their entire length. The long cutting edges are carefully ground. Finished with polished head and blued handles, the pliers are seven inches long.



6 REASONS WHY WE MAKE 6 DIFFERENT GRADES

MORE than 50 makes of electric refrigerators and air conditioning units are using various types of refrigerants. The lubrication requirements differ widely.

To meet all these wide variations in (1) design, (2) size of unit, (3) refrigerant used, (4) character of service, (5) operating conditions, and (6) manufacturers' recommendations, Texaco Capella Oils come in 6 different viscosity grades.

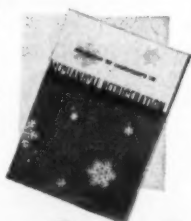
Users can now specify exactly the proper grade needed for most effective

lubrication. All Texaco Capella Oils have sub-zero pour points. They are moisture-free, have greater stability and longer life. They do not sludge or react with the refrigerants in service.

Trained lubrication engineers are available for the selection and application of Texaco Capella Oils. Prompt deliveries assured through 2108 warehouse plants throughout the United States.

The Texas Company, 135 East 42nd Street, New York City.

56 pages of valuable information on refrigeration machinery and its lubrication. Full of helpful suggestions. Write for your copy... sent FREE on request.



TEXACO

Capella Oils

Macklanburg Starts 1938 Dealer Meetings

OKLAHOMA CITY—Eighty-one distributors, dealers, and service men from this territory attended the first dealer meeting held this year by Macklanburg Brass & Copper Products, Inc., refrigeration and air-conditioning supply jobber, according to A. R. Morin, manager of the company's refrigeration department.

Fedders Mfg. Co. cooperated in staging the meeting, and the majority of the time was devoted to Fedders products. Horace I. Schmidt, manager of Fedders' Dallas branch, conducted a portion of the meeting and showed illustrated slides of company products.

W. A. Leonard, vice president, Imperial Brass Mfg. Co., Charles Anderson, representative of Imperial's Kansas City branch, and W. M. Browning of Linde Air Products Corp. also were present.

K. B. Covert, manager of the Macklanburg organization, introduced the company's personnel to those attending the meeting.

Represented at the meeting were the following Oklahoma cities: Chickasha, Wewoka, Pauls Valley, McAlester, Norman, Guthrie, El Reno, and Ft. Reno.

SERVICE LETTERS

Clearing Up the 'Cloudy Beer' Issue

Temprite Products Corp.
47 Piquette Ave., Detroit
Service Editor:

The story given to beer cooling is certainly very thorough and should be very educational to everyone engaged in the beer cooler business. There is one point which has not been made quite clear. This point has reference to cloudy beer as printed in your Feb. 16 issue, column 4, item No. 2.

"Beer too cold—beer that is below 45° in the precooler and/or below 40° plus or minus 1° in the Temprite cooler may be drawn in a cloudy condition."

Most American beers are chill proofed and filtered which is accomplished by reducing the temperature of the beer to a point below the normal storage or draught temperature. This reduction of temperature causes a precipitation in the beer, and it is this precipitation which would normally make the beer cloudy.

This precipitate is removed immediately by pumping the beer through filters. The beer will not become cloudy by chilling until the temperature reaches or goes below the temperature for which it is chill proofed.

The better American beers are chill proofed to a temperature as low as 32°. Many brands of beer are still sold that are not chill proofed to this temperature. Any beer drawn or stored below its chill proofed temperature will become cloudy regardless of the type or kind of equipment used.

Beer manufactured in many other countries is not given this treatment. Consequently, the cooler temperature is set much higher. Temprite coolers are adjusted to deliver beer at 50 to 55° in New Zealand, Australia, South Africa, and many other countries selling this type beer.

There is no danger of an exit temperature of 40° causing cloudiness in American standard beers, because all are chill proofed below 40°.

H. B. McLAUGHLIN,
Sales Manager.

San Francisco Jobber In New Quarters

SAN FRANCISCO—The Wyatt R. Brown Co., jobber of refrigeration equipment and supplies, has moved to its new building at 734 Harrison St., where facilities will enable the company to carry a more complete stock of parts, supplies, and equipment.

Wyatt R. Brown is head of the company, which has been established here since 1931, first as a manufacturers' representative, and for the last three years as a refrigeration supplies jobber. The company sells wholesale only, and has no shop for repairs or installation.

In addition to refrigeration parts, the company acts as jobber in northern California for the Seeger commercial refrigerator line. This equipment also is sold only to the trade, the company doing no business direct with users.

St. Louis Supply Firm Issues Catalog Listing 1938 Products

ST. LOUIS—Brass & Copper Sales Co., refrigeration and air-conditioning supply jobber, has just issued a catalog listing its 1938 lines of parts, tools, accessories, and equipment.

U. E. I. Plans Expansion Of Engineering Quarters

CHICAGO—Utilities Engineering Institute has leased additional office space to provide for the expansion of its engineering department, announces E. P. Sorensen, president.

The engineering staff now will be segregated from other departments of the institute, enabling it to concentrate on engineering research and deal more effectively with student problems, Mr. Sorensen says.

Establishment of a centralized engineering unit permits individual instruction service under direct supervision of staff engineers, and better facilities also are available for student interviews with the engineers, Mr. Sorensen adds.

To further its policy of personalized instruction, the institute has added three new instructors to its staff, to permit greater efficiency in the handling of student problems.

'How To Improve Welding' Given In Pamphlet

EAST PITTSBURGH—Ways of increasing profits with better welding quality are suggested in a new 12-page pamphlet, entitled "New Profits from Resistance Welding with Ignitron Split-Second Control," issued by Westinghouse Electric & Mfg. Co.

The booklet contains instructions for handling unusual welding jobs needing frequent heat adjustments or different current and time values, and is illustrated with photographs of actual installations and parts.

Hertenstein Discusses Valves Before N. A. P. R. E.

MEMPHIS, Tenn.—E. L. Hertenstein, representative of Lukenheimer Co., Cincinnati, discussed "Valves and Kindred Topics" before the National Association of Practical Refrigerating Engineers when it met here recently at Hotel Chisca. Mr. Hertenstein was introduced by John H. Lemm, president of the association.

WHOLESALE ONLY SUPPLIES - PARTS - TOOLS

Refrigeration — Air Conditioning
Oil Burner — Stoker

Write for Our New Catalog
VINCENT BRASS & COPPER CO.
100 North Second St., Minneapolis, Minn.

New Type Thermostatic Expansion Valve Built By Detroit Lubricator

DETROIT—Latest addition to Detroit Lubricator Co.'s line of expansion valves is the No. 679, a double diaphragm, adjustable, all-metal thermostatic valve recommended for general household and commercial refrigerator use where the evaporator capacities do not exceed one-half ton Freon or sulphur dioxide, or one ton methyl chloride.

Provision is made for superheat adjustment without the necessity of removing the valve from service.

Power element of the No. 679 valve is gas charged, as are all Detroit thermostatic expansion valves. Refrigerant is charged into the power element in the gaseous form at a predetermined pressure. This pressure determines the maximum point at which the valve can open.

When the suction pressure is above this point, the valve must remain closed, regardless of temperature. When the pressure pulls down to the predetermined point, the valve begins to open, and maintains a constant

pressure until the feeder bulb becomes cooled.

At this point, part of the gas charge condenses into a liquid, and the valve then operates in the usual manner.

Gas charge, therefore, limits the maximum operating pressure of the system. By selecting the proper maximum pressure, the motor is given protection, and the valve also prevents filling the coil with liquid during the off cycle, and consequent liquid slugging.

Valve will not open until the low side pressure is below the maximum operating pressure of the power element. This feature is said to be particularly important on domestic and low-temperature applications, in that the gas-charged power element makes it possible to use a smaller motor, and to realize higher efficiency during normal operation.

The valve is regularly supplied with 1/16-inch orifice, but is also available with 1/32-inch orifice for those jobs where the load does not exceed the rating for that size. Inlet connection is furnished with screen assembly and flare nut for 1/4 or 3/8-inch O.D. tubing, outlet connection with 1/4-inch female I.P.T.

Feeler bulb is a length of coiled tubing, and is provided with either

12 or 60 inches of capillary tube, the latter length being standard.

The stainless steel diaphragms are reinforced to prevent localized strain, assuring long life. Motion is transmitted from the valve diaphragm to the needle equalizer disc by three pins. A swivel and self-aligning device automatically keeps the needle in alignment, preventing wiping and needle side thrust.

Needle and seat are made of a special alloy to assure freedom from corrosion.

Despatch Oven Co. Officers Elected

MINNEAPOLIS—Directors of Despatch Oven Co., at their annual meeting, recently re-elected the following officers: president, A. E. Grapp; vice president and general manager, H. L. Grapp; vice president and production manager, C. P. Doherty; vice president and chief engineer, G. C. Keyes; secretary and sales manager, F. H. Faber.

The Despatch company, which makes industrial ovens, dryers, and furnaces, as well as laboratory ovens and cabinets, reports that last year was the best in its history.

SULPHUR DIOXIDE

THE BEST REFRIGERANT FOR HOUSEHOLD MACHINES
And Many Applications of Small Tonnage Commercial Machines

- Best ① **IT IS IDEAL FROM A LEAK DETECTION STANDPOINT.**
The simple and reliable ammonia test locates immediately and definitely even most minute leaks at virtually no cost.
- Best ② **IT ACTS AS ITS OWN WARNING AGENT.**
If it does escape, as little as five parts per million are detectable, immediately notifying the owner that his machine needs attention—no cessation of refrigeration.
- Par ③ **IT IS NON-EXPLOSIVE AND NON-INFLAMMABLE.**
Manufactured by the complete combustion of sulphur in oxygen, there is no possibility of further combustion.
- Best ④ **IT IS AN ABSOLUTELY STABLE GAS,**
Even in the presence of a flame.
- Best ⑤ **IT LENDS ITSELF TO PERFECT LUBRICATION.**
It does not dilute oil (about 14% soluble in oil at room temperature). Readily separated from oil if desired. No refrigerant dilution.
- Par ⑥ **IT OPERATES WITH LOW HEAD PRESSURES,**
Permitting air cooling and light construction at lower unit cost.
- Par ⑦ **IT DOES NOT CORRODE, WHEN DRY,**
Any metals used in machine construction. It is just as essential to eliminate moisture when using other refrigerants as when using sulphur dioxide.
- Best ⑧ **NO ICE CRYSTALS WILL FORM**
At the expansion valve because of its water solubility.
- Par ⑨ **FOR POWER CONSUMPTION, EFFICIENCIES,**
And ease of design and servicing, it is at least equal to any other refrigerant.
- Best ⑩ **IT IS A LOW PRICED CHEMICAL,**
Due to the fact that there is a considerable production for other than refrigerating uses.
- Par ⑪ **IT IS UNIVERSALLY AVAILABLE**
Through all recognized jobbers and manufacturers' agents.
- Best ⑫ **MILLIONS OF MACHINES,**
Many in operation 8 and 10 years, provide a clear record of safe and satisfactory performance.

CUMULATIVE SALES TO 1-1-38.....(Est.) 13,658,000

LESS MACHINES EXPORTED.....(Est.) 1,000,000

12,658,000

LESS MACHINES RETIRED.....(Est.) 1,170,000

H. H. MACHINES IN USE TODAY IN U. S.....(Est.) 11,478,000

It is estimated that a minimum of 65% of this number operate with Sulphur Dioxide and a million of these machines have operated eight years or more.

LET THE RECORD SPEAK FOR ITSELF

FOR COMMERCIAL MACHINES USE ANSUL METHYL CHLORIDE.

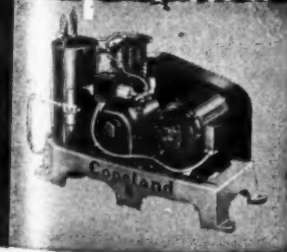
For

GUARANTEED QUALITY
COMPLETE CYLINDER SIZES
THOROUGH DISTRIBUTION

ANSUL CHEMICAL
COMPANY

MARINETTE, WISCONSIN

The Distributor Who Sells the Copeland REFRIGERATION LINE



IS BUILDING GOOD-WILL FOR
YEARS TO COME!

It is just good business foresight to sell your customers a quality-built Copeland product. Whether you sell Copeland Household or Commercial Refrigeration, you are wisely building up a backlog of long-time customer satisfaction that will pay you dividends in continued patronage for many years.

Write for Sales Plan

COPELAND REFRIGERATION CORPORATION
Sidney, Ohio

Air Conditioning

Laboratory Research By Medical Authorities Provides Air-Conditioning Industry With New Facts On 'Human Comfort' Condition

By F. O. Jordan

NEW YORK CITY—Plainly indicative of the interest of the medical profession in the effect of air conditioning on human health and comfort were several papers given before the annual meeting of the American Society of Heating and Ventilating Engineers, covering subjects ranging from physiological reactions to bacterial control.

Inevitable as well as fortunate is this cooperation between air-conditioning engineers and medical men because the prime interest of each is in the health and comfort of the human race, which therefore stands to benefit directly from constructive collaboration between the men best fitted to know what conditions tend toward health, and the men who know how to produce those conditions.

The paper "Physiological Reactions and Sensations of Pleasantness Under Varying Atmospheric Conditions," delivered by C. E. A. Winslow, director of the John B. Pierce Laboratory of Hygiene, brought out the following points:

LIMITS ON HEAT LOSS

"Major effects of the atmospheric environment upon health and comfort are directly related to thermal interchange (exchange of heat) between the human body and that environment.

"The most significant contributions have been made by engineers who have boldly and successfully entered the physiological field."

Bodily heat loss is limited as

environmental (surrounding) air temperatures fall by reduction in skin temperature (particularly of the bodily extremities), while bodily heat loss is raised, as the environmental air temperature rises, by evaporation of perspiration which is produced at an increased rate.

Increase in air velocity increases the sensation of coolness if air temperature is below body temperature and if relative humidity is high, because of increased rate of heat transfer from body to relatively cooler air, and because of increased rate of evaporation of perspiration which is retarded by humidity.

EFFECT OF VELOCITY

But increase in air velocity, it was pointed out, increases sense of warmth if air temperature is higher than body temperature, and if relative humidity is low, because rate of heat transfer to the body from relatively warmer air is raised, and because air velocity does not appreciably raise rate of evaporation of perspiration which is already high because of low relative humidity.

"With cold air and hot walls the skin temperature falls more rapidly than with air and walls of more nearly equal temperature, exerting the same total thermal effect (effective temperature) from a physical standpoint," said Mr. Winslow.

Even though evaporation of perspiration may result in normal loss of bodily heat, the necessity for it should be avoided by use of air conditioning, because perspiration in

itself is a source of unpleasantness, it was pointed out.

In the paper, "Physiologic Response of Man to Environmental Temperature," Dr. F. K. Hick, department of medicine, University of Illinois, stressed the following:

"The chemical regulation of body temperature is negligible in man under basal conditions and within the ranges investigated.

"Radiation of heat is a principal means of heat loss in a range below 80° effective temperature. It is controlled by a sensitive regulation of skin temperature, especially in the extremities.

SWEATING AT 81°

"The point at which sweating appears for a subject under basal conditions is about 81° effective temperature. A drop in skin temperature of the extremities occurring a few degrees below that suggests that evaporation from the body surface has increased at 77° effective temperature.

"Under basal conditions rectal temperature does not rise until the effective temperature reaches 91°.

"Evidence is presented of a redistribution of blood as the skin temperature rises, leading to a diminution of blood content of the lungs.

"The effective temperature scale comes nearest to correlation with the observations reported in these investigations. If to this could be added the factor of radiation capacity of the environment, better correlation could be expected."

Indication of greater accuracy of effective temperature as a measure of comfort is the fact that perspiration line, body surface temperatures, and rate of bodily heat production follow effective temperature more closely than they follow dry-bulb temperature.

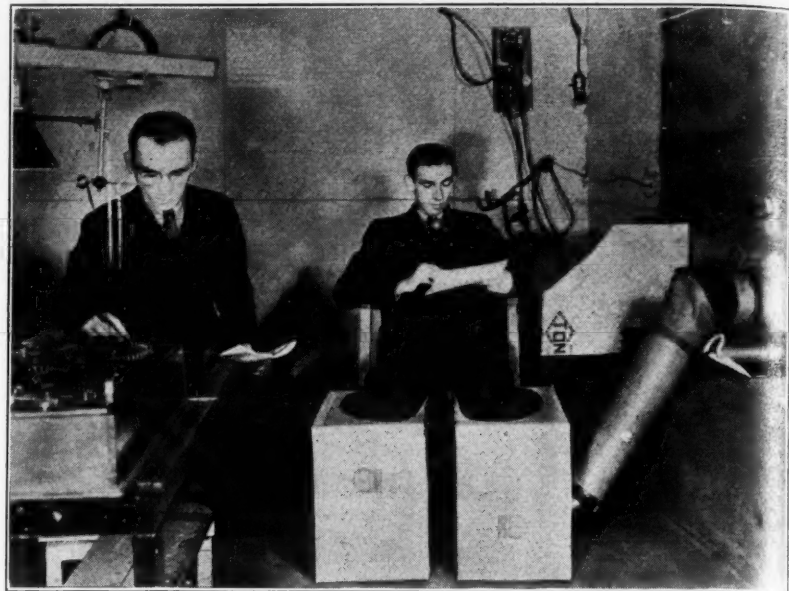
Rate of bodily heat production rises with seasonal drop in environmental temperature, and falls with seasonal temperature rise, but the changes in bodily heat production lag behind environmental temperature change by more than a week.

ABOUT RADIANT HEAT

Brought out in the paper "Control of Body Heat Loss Through Radiant Means," presented by Dr. C. A. Mills, professor, experimental medicine, University of Cincinnati, were the following statements:

"In this article it is desired to present the results of certain preliminary studies which strongly indicate the feasibility of controlling body heat loss through radiant heat channels. These results appear to be striking and unequivocal in their significance, so much so that their early publication was deemed advisable in order that other investigators might aid in expanding this line of research.

Getting 'Cold Feet' For the Sake Of Science



Scientific determination of what constitutes a draft and how people react to drafts around the ankles, at the back of the neck, or other sensitive portions of the body, is the object of special research in the laboratory of the American Society of Heating and Ventilating Engineers, aimed at the elimination of one of the most common complaints in air-conditioning systems. In this picture, the man with his feet in "ankle boxes" is having a stream of colder air, controlled as to temperature, humidity, and velocity, directed at his feet from a duct shown at the right. The man at the left is taking electrical reading of his skin temperature and asking him to check his sensation of comfort on the chart which he holds.

ADVANTAGES OUTLINED

"The second objection to present methods lies in the necessity of warming or cooling the whole air mass and wall materials in order to produce body comfort. With air seepage and conduction loss from buildings, and with the human needs actually forming only a small part of the heating or cooling load, air conditioning would seem to be highly inefficient as a method of controlling body heat loss.

"More direct transmission of heat to or from the skin and clothing, without regard to air conditions, is possible only by radiant means. It therefore becomes important to know whether it is physiologically sound to control body heat loss in this manner."

In order to investigate the effect upon body sensations of warmth and coolness of hot walls combined with low air temperatures, and of cold walls with high air temperatures, test rooms were devised with air conditions of about 90° dry-bulb temperature and 65% relative humidity with wall temperatures below 40°, and with air at 32° dry-bulb temperature with hot walls.

WALL TEMPERATURES

It was found that in the former room, subjects were uncomfortably cool because of the cold wall, regardless of the high air temperature and humidity, while in the latter room, subjects were warm because of the warm walls regardless of the low air temperature, thus indicating that comfort may be regulated by wall temperature, largely independent of the temperature and humidity of the room.

"In summary these preliminary findings indicate certain important points: Human comfort and animal growth and development can be regulated, with what seems apparent safety, by control of body heat loss through radiant channels alone.

Practical feasibility of such radiant control lies in differences in radiant heat absorption and emission exhibited by various substances.

Clothing materials rapidly radiate their heat to cold surfaces (if such be available) and fall to temperature levels well below those of surrounding hot air, thus encasing the body in a cooled capsule to which it can readily lose its internal heat.

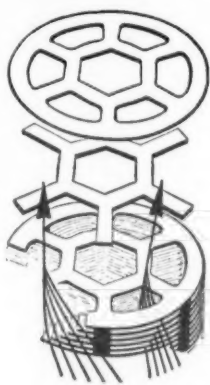
In cold air, clothing readily absorbs radiant heat and forms a warm (Concluded on Page 19, Column 3)

ZENITH Refrigerant Filters

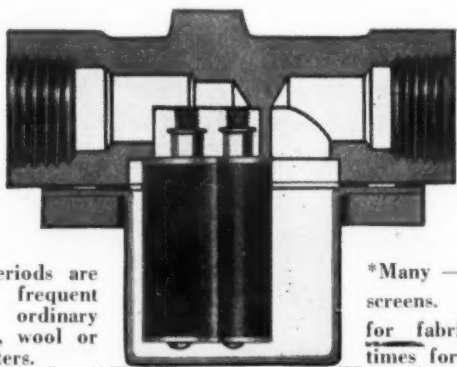
INSURE THE LAST WORD IN COMPLETE FILTRATION

Zenith elements have many* times as much effective filtering surface as other filtering mediums of the same size—or as much as other filters many* times as large!

The Compact Zenith Filter has a surprisingly great capacity in spite of its small external dimensions.



This diagrammatic drawing of the Zenith Filter Element shows how the fluid passes through the fine interstices that are 2½ times finer than 120 mesh screen.



Cleaning periods are much less frequent than with ordinary wire screen, wool or asbestos filters.

*Many—Twice for screens. Eight times for fabrics. Twelve times for felts.

ZENITH CARBURETOR COMPANY
Subsidiary Bendix Aviation Corp.
DETROIT, MICHIGAN

General K-15

QUIET, DEPENDABLE REFRIGERANT CONTROL

General Controls current-failure Magnetic Refrigerant Valves are full-powered and pilot-operated to insure positive instant opening against high pressures. Tight closing with the line pressure on top of the seat and full-ported to handle large capacities at a minimum pressure drop. Absolutely quiet in operation. Port sizes from 5/64" to 2".

TIGHT CLOSING
POSITIVE OPENING
FULLY POWERED
CURRENT-FAILURE
PILOT-OPERATED
PACKLESS DESIGN
NON-CORROSIVE
WATER-PROOF COILS

New refrigerant valve for positive control of fractional tonnage installations. The 5/64" port will hold tight on liquid line capacities as low as 150 B.T.U. per hour.

GENERAL CONTROLS
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1370 Harrison St., San Francisco, Calif.
450 East Ohio St., Chicago, Ill.

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Send for the New
REFRIGERATION CATALOG

Seven Models of Compressors
Fifty-eight Models of High-
sides from 1/2 H.P. to 15 H.P.
BRUNNER MANUFACTURING CO.
UTICA, N. Y.

Where Air-Conditioning Systems Were Installed In Houston, Texas In 1937

(Compiled by Houston Power & Lighting Co.)

Name and Address Equipment and Installer Tons Hp.

Air-Conditioning Engineering Companies

Air Conditioning Co., 4304 Main St.	G-E-Air Cond. Co.	5	6
Dixie Heating & Vent. Co., 109 Fannin	Frick-Dixie	4.5	5
Perfection-Aire Cond. Co., 3722 Main St.	Carraway-Byrd-Perfition	5	5
Way Engineering Co., 1901 Caroline	Airtemp-Way	3	3.33

Auditorium

Jesse Jones Colosseum, Buffalo Drive	York-York	220	275
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Bank

National Bank of Commerce (Auditing)	Vilter-Heyne	16	20
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Barber Shops

Engelbert & Dorsey, 1012 Preston	G-E-Air Cond. Co.	3	3.75
Majestic Theater Barber Shop, 805 Travis	Airtemp-Way	3	3.33
Chestnut Barber Shop, Shell Bldg.	Carrier-Straus-Frank	6	8

Beauty Parlors

Mayo's Beauty Salon, 3404 Caroline	Airtemp-Way	3	4.83
Charles & Joseph Beauty Salon, 2927 Main	Carrier-Straus-Frank	6.5	8
Emile Beauty Salon, 2040 West Gray	G-E-Air Cond. Co.	7.5	9
Uptown Beauty Salon, 803 Capital	Carrier-Carrier	Off same system as Horwitz Theaters	

Building & Loan Associations

Houston Bldg. & Loan Ass'n, 1116 Capital	Frigidaire-Robisch'g-K.	18	22
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Churches

Annunciation Church, 1618 Texas	Frigidaire-Robisch'g-K.	45	51
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Clinics

Dr. Henry Marish, 3810 Fannin	Airtemp-Way	10	14.5
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Clubs

Tejas Club, Petroleum Bldg.	Cool-Aire-Perfection	1	1
Little Club	Airtemp-Way	9	10
Bank Club	Airtemp-Way	3	3.33

Country Clubs

River Oaks Country Club, River Oaks Blvd.	Carrier-Straus-Frank	52	65
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Department Stores

Battelstein's, Inc., 812 Main St.	Carrier-Straus-Frank	48	55
Foley Bros., Fields Bldg.	Frigidaire-Robisch'g-K.	26	31
Foley Bros., 407 Main (5th Fl.)	Frigidaire-Robisch'g-K.	22	24
Foley Bros., 407 Main (6th Fl.)	Frigidaire-Robisch'g-K.	16	18
Foley Bros., 407 Main (7th Fl.)	Frigidaire-Robisch'g-K.	16	18
Levy Bros., 902 Main St.	Carrier-Heyne	256	300

Drugs

Liggett's Drug Store, 801 Main St.	Frigidaire-Robisch'g-K.	15	18
Walgreen Texas Co., 1023 Main St.	Carrier-Straus-Frank	40	40
Walgreen Texas Co., 1037 Westheimer	Carrier-Straus-Frank	26	30
Mading's Drug Store, 5101 Montrose	York-York	13.5	18.5

Fur Vaults

Foley Bros., 407 Main St.	Frigidaire-Robisch'g-K.	8	11.5
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Grocery Stores

J. Weingarten, Inc., 808 Prairie	Carrier-Straus-Frank	55	65
Minimax Store, 1019 Westheimer	Frigidaire-Robisch'g-K.	39	45
Quality Market, 3020 Travis	York-York	9	13
Nowell Grocery, 2403 Taft	Westinghouse-Cochran	9.5	12
A. B. C. Stores, 2030 West Gray	G-E-Air Cond. Co.	30	35
A. B. C. Stores, 1102 Yale	Airtemp-Way	25	30

Hospitals

Dr. Ernest Wright, Hospital, 2407 N. Main	G-E-Air Cond. Co.	15	17.5
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Hotels

Ben Milam Hotel, 1521 Texas	York-York	150	220
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Industrial Applications (Preservation and Processing Purposes)

Continental Can Co., 105 North Greenwood	G-E-Air Cond. Co.	50	55
Lone Star Cement Co., 91st & Becker	G-E-Air Cond. Co.	4.5	5.3
Art Engraving Co., 1305 Prairie	G-E-Air Cond. Co.	1.5	1.5
Trinity Portland Cement Co., 3515 Navigation	York-York	2.5	3.5
Robin Hood Poultry Farm, Telephone Rd.	York-York	.5	1
Geo. Geyer & Sons, 3820 San Jacinto	York-York	7	11

Jewelry Stores

Gordon, Leon, Jewelry Co., 616 Main St.	Westinghouse-Cochran	8.5	12
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Ladies' Ready-To-Wear Stores

The Fashion, 917 Main St.	Carrier-Straus-Frank	27	36
The Smart Shop, 905 Main St.	Westinghouse-Cochran	18	25
Lerner Shop of Texas, 715 Main St.	Westinghouse-Cochran	45	60
Everett Buelow, 1101 Main St.	Frick-Dixie	37	50
D. F. Peyton Co., 1015 Main St.	York-York	20	31
Rupley, Ralph, Fur Co., 1005 Main St.	G-E-Air Cond. Co.	15	15
Georgiana Williams Gown Shop, 3805 Main	G-E-Air Cond. Co.	9	10

Liquor Stores

Sterling D. Anderson, 1400 Franklin	Frigidaire-Robisch'g-K.	.75	.75
Morrison's Liquor Store, 724 McKinney	G-E-Air Cond. Co.	1	1.12
Jerry & Mike's, 2042 West Gray	G-E-Air Cond. Co.	2	3

Men's Clothing Stores

Nathan's, Inc., 618 Main St.	Westinghouse-Cochran	13	17
Shuddo's, 620 Main St.	Universal-Commercial	10	14.5

Millinery Stores

Nita's Lamar Hat Shop, 1017 Main St.	Westinghouse-Cochran	4.2	7
Nita's Millinery, 608 Main St.	Carrier-Straus-Frank	5	6

(Continued on Page 20, Column 3)

Scientific Research Provides Clues To 'What Is Comfort'

(Concluded from Page 18, Column 5)

envelope around the body to slow the process of heat loss from the skin. The paper, "Draft Conditions and Velocities in Relation to Skin Temperature and Feeling of Warmth," which was delivered by F. C. Houghten, director, A.S.H.V.E. research laboratory, brings out the probable inaccuracy of depending upon the senses in deciding upon the cause of discomfort because of the average person's tendency to blame drafts for any sense of "chilliness," even though tests may prove the sensation of cold to be the result of low air temperature, or proximity to some cold surface such as a wall or window.

FIXING BAD CONDITIONS

This fact calls attention to the futility of attempting corrective measures regarding an uncomfortable room based upon the impressions of the occupants as to the cause of discomfort, because expensive alterations to the air-distribution system in an effort to eliminate supposed drafts obviously would be wasted if discomfort actually proved to be the result of some other cause.

For example, time and money might be spent in changing ducts and grilles without avail, when merely raising room temperature or insulating walls, or use of storm sash might be the required remedy, as Mr. Houghten declared.

"Drafts are probably the source of more complaints directed against ventilating and air-conditioning systems than any other defects. Notwithstanding this, the engineer has no way of evaluating what constitutes a draft other than his own personal feelings.

"A person may also experience a local sense of coolness due to radiation from a portion of his body to a cooler surface, such as a cold wall or window. This feeling may also be interpreted as a draft.

DEFINITION OF A DRAFT

"From these considerations, the term draft as applied to conditions of the atmosphere within an occupied space may be accepted as meaning any local sense of cooling of a portion of the body—caused either by an excessive movement of air or normal temperature, by air having a normal velocity but a lower temperature, by excessive radiation to a cold surface, or any combination of these three effects."

In closing, the speaker cited the following conclusions as resulting from the investigations of the Research Committee upon the subject of drafts.

The study shows that there is a definite relationship between the skin temperature of the ankle and neck and the temperature and velocity of a draft of air striking these parts. Data on these relationships and the resulting feeling of warmth are given for room conditions of approximately 70° F. and 50% relative humidity only. For the same change in air temperature and velocity a greater change in skin temperature is indicated for the neck.

"Studies on Bacterial Control in Air Conditioning," presented by H. K. Mason, research chemist, Monsanto Chemical Co., proved to be an investigation of the effect upon sterility of the air resulting from

the use of germicidal solutions in the conventional air washer.

CONTROL OF BACTERIA

When operated on sterile water, an air-washer possesses a certain base efficiency in removing microorganisms from the air. This efficiency is apparently constant for the particular system (under uniform operating conditions) and is probably a function of the design of the equipment.

There is a direct relationship between the degree of microbial contamination of the air-washing water and the efficiency of the air-washer as an apparatus for removing microorganisms from the air.

As the degree of pollution of the washing water increases, the microbial efficiency of the air-washer decreases, and if the pollution becomes sufficiently heavy, the washer efficiency becomes negative. That is, it actually furnishes organisms to the air rather than removing them from it.

The addition of sufficient germicide to the washing water to render it sterile insures continuous operation at base efficiency, but does not seem to increase the efficiency beyond this range.

An air-washer operated on sterile water is an efficient apparatus for bacterial control of air, and the use of a suitable germicide is a convenient way to insure sterility of the washing water.

The air may leave an air-washer with a higher bacteria count than when it enters unless some effective germicide is used because of the formation of germ-infested slime.

An interesting statement brought out in the discussion was to the effect that a conventional air filter installation at Rockefeller Center in downtown New York removes 95% or more of all materials from the atmosphere, which was said to result in a bacterial count 84% lower than in the average unventilated theater, or even lower than in the adjacent park.

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Modern styling . . . Beautiful design . . . Outstanding construction . . . Economical operation! TOMORROW'S case, presented TODAY! Get the jump on other distributors by selling this modern marvel of electrical refrigeration. Its NEW style and NEW features give you exclusive selling advantages! NEW PERCIVAL FINANCE PLAN HELPS YOU SELL.

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DES MOINES IOWA
51 YEARS OF SERVICE 1886-1937

A BOMB SHELL

THE Sensational

NEW ECON-O-CASE



In design, in construction, in performance, this new display case is a sensation. Yet it is low in price and economical to operate. The Koch line is complete. There is a counter, a cooler, or a refrigerator that will meet every requirement.

WRITE KOCH TODAY

There is big money in the Koch line for qualified distributors.

KOCH REFRIGERATORS
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PELCO is no "it takes a year to lay the groundwork" product—acceptance is almost instantaneous. Here are some reasons why: **RICH APPEARANCE, AUTOMATIC**—keeps itself supplied with **FLOATING ICE** as needed, **DOUBLE UTILITY**—the world's finest beverage cooler plus a roomy "dry-cold" refrigerator, **REFINEMENTS** in building—protected coils of seamless copper, non-corrosive ovenize drain, heavy chrome-plated hardware, **STURDY**, rugged construction, **SUPER-POWERED**.

Send for MORE FACTS. Address Desk A-38

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PORTABLE ELEVATOR MFG. CO.
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PELCO
Electric BEVERAGE and BEVERAGE-FOOD Cooler
Makes its own Floating Ice

MODEL 200
BEVERAGE AND FOOD COOLER

MODEL 240
BEVERAGE COOLER

Lloyd Mitchell Handles Westinghouse Line

BALTIMORE—Lloyd E. Mitchell, Inc. has been appointed distributor of Westinghouse summer air-conditioning equipment in Baltimore and the surrounding territory. The company has been in business for 60 years, having been organized in 1878 as a heating, plumbing, and ventilating contractor.

Home Comfort System Co. has been named distributor of Westinghouse oil burners and winter air-conditioning equipment in this area.

New Universal Distributor

SAGINAW, Mich.—General Distributing Corp. has been appointed central Michigan distributor of the Universal line of refrigerators manufactured by Landers, Frary & Clark. F. E. McWhirter is president and active manager of the Saginaw distributorship.

Complete Air-Conditioning Equipment Installed For University of Illinois Laboratory By Frick Distributor

URBANA, Ill.—Complete equipment for student instruction and research in air conditioning has been installed in the laboratory of the department of mechanical engineering of the University of Illinois.

Length of the testing equipment from inlet duct to discharge fan is 42.5 feet. Air is discharged into the main laboratory at present, but future plans include a system of ducts between the air-conditioning equipment, a 100-seat lecture room, and several adjoining rooms.

Cooling capacity of the system equals 12 tons of refrigeration when handling 3,000 c.f.m. of air. Steam at five pounds pressure is used in the preheating and reheating coils.

Included in the system are a recirculating air duct, an air filter section, air preheater coils and by-pass dampers, steam jets for regulating

humidity of entering air, air cooling and dehumidifying coil using chilled water, direct expansion Freon-12 cooling and dehumidifying coil, spray air washer, control dampers and washer outlet, main by-pass connection, air reheater coil, fan, and air discharge duct.

Refrigerating system is composed of Frick Co. products, and was supplied by Midwest Engineering & Equipment Co., Chicago. Included are a 5.75 x 4 enclosed type Freon-12 compressor, a shell-and-tube condenser, and a water cooler. The condenser is 16 inches in diameter and 9 feet 9 inches long, and is equipped with a water regulating valve and water pressure failure switch.

WATER COOLER USED

Cooler has three horizontal water passes, each comprising two 2½-inch O.D. copper tubes 18.5 feet long. Inside each tube are five ¾-inch copper tubes, through which the water flows.

Each pass is fitted with a thermostatic expansion valve. A common suction header handles the gas at the opposite end, where an adjustable back pressure valve is installed.

Water cooler is protected against freezing by a thermostatically operated switch connected to an electric control valve in the liquid line. When this valve closes, the compressor pumps down until the low-pressure cut-out causes the main motor to stop.

Bulb of the thermostat is placed in the outlet to the cooler. Other hand and automatic controls assist in securing continuous operation of the compressor when needed.

One side of the main air duct has several access doors with glass windows, electric lights being opposite these on the inside. The ducts for recirculated, outside, and discharge air are fitted with restricted sections simulating venturi tubes for measuring velocities, which may reach as high as 1,000 feet per minute in the full-sized portions of the ducts.

STUDY MANY PROBLEMS

"The apparatus is suitable for use in the study of many problems," state W. H. Severns and M. K. Fahnestock of the university's engineering department.

Included in the study subjects are: air cleaning by use of either filters or washers; air humidification; air cooling and dehumidification by three different pieces of apparatus; hot blast heating, using either steam or hot water as heating medium; heat transfer of finned coils, using either steam or hot water; heat transfer of finned tube cooling coils, using either chilled water or direct expansion of the refrigerant, with dry and wet surfaces.

Problems involving the reheating of cooled and dehumidified air by the use of either a steam reheating coil or by by-passing recirculated air; all-year air conditioning of spaces in which typical load conditions may be maintained, either in winter or summer; centrifugal fan performance under different load conditions; precision measurements of both dry and wet-bulb air temperatures; air distribution by means of nozzles, grilles, and diffusers; and the measurement of airflow and friction losses in ducts of varying section and shape, and different units such as filters and coils.

1937 Houston, Texas Installations (Cont.)

(Continued from Page 19, Column 2)

Name and Address Equipment and Installer Tons Hp.

Office Buildings

Humble Oil & Ref. Co., Main & Dallas....	York-York	35	11
Second National Bank Bldg., 800 Main....	Frick-Dixie	475	875

Offices

West Production Co. Gar., Lamar & Jackson	Airtemp-Way	3	3.33
Dow Motor Co., 710 Walker.....	Cool-Aire-Perfection	4	4
Mission Mfg. Co., Humble Rd.....	Westinghouse-Cochran	12	15
Houston Ltg. & Power Co. (Personnel)....	York-Star	1	1
Erwin Bag Co., Long Reach Wharf.....	York-York	3	3.33
Navarro Oil Co., San Jacinto Nat'l Bk. Bldg.	G-E-Air Cond. Co.	30	38
Navarro Oil Co., San Jacinto Nat'l Bk. Bldg.	Carrier-Straus-Frank	2.25	2.25
Sartartia Plantation Dairy, 2054 Richmond	G-E-Air Cond. Co.	2	2.75
Houston Natural Gas Co., Petroleum Bldg.	Kelvinator-Straus-Bod.	1	1
Dr. F. F. Meine, Shell Bldg.....	G-E-Air Cond. Co.	1	1
J. Ray McDermott & Co., 907 Bell.....	Kelvinator-Straus-Bod.	1.5	1.5
B. V. Christie & Co., First Nat'l Bk. Bldg.	Kelvinator-Straus-Bod.	3	3.2
Dr. Allen Penny Bloxson, 4402 Travis....	Frigidaire-Robisch'g-K.	2	2
Houston Milling Co., Becker Ave.....	Frigidaire-Robisch'g-K.	15	18
Houston Milling Co., Becker Ave.....	Carrier-Straus-Frank	1.6	1.5
Dr. G. G. Eganhouse, 3215 Main St.....	Kelvinator-Straus-Bod.	1	1
Dr. Robert C. Botts, 4402 Travis.....	Frigidaire-Robisch'g-K.	.5	.5
Maritime Oil Co., 2009 Noble.....	Frigidaire-Robisch'g-K.	5	5.75
George S. Cohen, Foley Bros. Bldg.....	Frigidaire-Robisch'g-K.	3	3.5
7-Up Bottling Co., 2204 Leeland.....	Westinghouse-Cochran	3	5.5
F. H. Maloney & Co., 2301 Prairie.....	Westinghouse-Cochran	1.5	2
Maxwell House Coffee Co., 2017 Preston...	Westinghouse-Cochran	5	7
Brown & Root, Inc., 4300 Calhoun.....	Carrier-Straus-Frank	8.5	12
G.M.A.C. Co. of C. Bldg.....	Carrier-Straus-Frank	48	50
Frick-Reid Supply Co., 2210 Quitman.....	Carrier-Straus-Frank	6.5	8.5
Hugh Potter, River Oaks Blvd.....	Carrier-Straus-Frank	2	2
American Can Co.-So., Lockwood & Clinton	Carrier-Straus-Frank	25	30
Norge Houston Co., 2907 Main St.....	Carrier-Straus-Frank	.75	.75
Milton R. Underwood & Co., Gulf Bldg....	Airtemp-Way	6	6.66
Cameron Iron Works, 711 Milby.....	Airtemp-Way	3	3.33
San Jacinto Finance Co., 1218 San Jacinto	Airtemp-Way	6	6.66
Black Bros. Furn. Co., 804 Capitol.....	Airtemp-Way	6	6.66
Texas Ice & Fuel Co., 6301 Harrisburg....	York-York (Ice)	9	2
Parkersburg Rig & Reel Co., 6300 Navigation	York-York	2.5	3.33
Standard Oil Field Sup. Co., 1801 Lyons...	York-York	6.5	9.25
Houston Wholesale Appl. Co., 910 Calhoun	York-Star	.75	.75
Houston Poster Adv. Co., 3515 Buffalo Dr.	York-Star	2	2
Houston Poster Adv. Co., 3515 Buffalo Dr.	G-E-Air Cond. Co.	1.5	1.5
Vinson, Elking, Weems & Francis,			
Esperon Bldg.	York-Star	1.75	1.75
Dr. Dan Scott, 1818 Crawford.....	Cool-Aire-Perfection	.6	.5
Dr. Homer E. Prince, Medical Arts Bldg...	Cool-Aire-Perfection	.75	.75
Dr. C. Paul Harris, 3815 Fannin.....	Cool-Aire-Perfection	.75	.75
Harry C. Allen Tire Co., 1302 Main St....	Cool-Aire-Perfection	1	1
B. B. Zavoico, Gulf Bldg.....	Carrier-Straus-Frank	.7	.75
L. J. Wheeler, M & M Bldg.....	Pacific-South Texas	.5	.5
W. K. M. Co., 220 Roberts.....	Carrier-Straus-Frank	.7	.75
Crown Central Pet. Co., Pasadena, Texas...	Westinghouse-Cochran	16	23
Petroleum Bldg. Eng. Co., Petroleum Bldg.	Carrier-Straus-Frank	.7	.75
Consolidated Chemical Co., Petroleum Bldg.	Carrier-Straus-Frank	7	7.7
Sun Oil Co., Esperon Bldg.....	Kelvinator-Straus-Bod.	1	1
Finnegan-Hide Co., 804½ Commerce.....	Kelvinator-Straus-Bod.	1	1
Chas. G. Eldson, M & M Bldg.....	Pacific-South Texas	.5	.5
George H. Cottrill, M & M Bldg.....	Pacific-South Texas	1	1.05
J. P. Calloway Tire Co., 1209 Quitman....	Cool-Aire-Perfection	.75	.75
Tennison Mfg. Co., 1901 Franklin.....	Frigidaire-Robisch'g-K.	5	5.75
Fluor Corp., M & M Bldg.....	Frigidaire-Robisch'g-K.	5	5.75
Mrs. G. A. Ralls, Inc., 1509 Westheimer...	G-E-Air Cond. Co.	5.75	5
Carl R. Allen Tire Co., 1618 McKinney...	Cool-Aire-Perfection	.75	.75
V. H. Borsodi, Gulf Bldg.....	G-E-Air Cond. Co.	1	1.12
W. N. Blanton, C of C Bldg.....	York-Star	1	.83
L. M. Robertson, 5625 Polk.....	Cool-Aire-Perfection	.87	.75
J. Weingarten, Citizens State Bank Bldg.	Kelvinator-Straus-Bod.	1	1
D. J. Harrison, Gulf Bldg.....	G-E-Air Cond. Co.	2.5	3
Kribs & Landauer, 2306 Crawford.....	Frigidaire-Robisch'g-K.	1.5	1.5
J. S. Abercrombie, Gulf Bldg.....	G-E-Air Cond. Co.	1.5	2
Continental Oil Co., Gulf Bldg.....	Vilter-Heyne	16	20
R. F. Taylor, Bankers Mtg. Bldg.....	Carrier-Straus-Frank	1.6	1.5
Lechenger L. Jeweler (Office), 815 Main...	Bennett-South Texas	.5	.5
Norvell-Wilder Sup. Corp., 1301 Maury....	Baker-Baker	8	10
Sanitary Farm Dairies, 1802 West Gray...	Carrier-Straus-Frank5
Rouse Exploration Drilling Co., 3511 Milam	York-Star	1	1
Bremmer's Body & Motor Co., 1010 Leeland	Carrier-Straus-Frank	.8	.75
International Air Cond. & Appliance Co.,			
2323 Milam	Bennett-International	.75	.75
George A. Hormel Co., 300 North Main....	York-Star	2	2
Houston Electric Co., 800 Travis.....	York-Star	1	1
Names Withheld	York-Star	2.25	2.25

Optometrists

Capitol Optical Co., 914 Capitol.....	Frigidaire-Robisch'g-K.	2	2.25
Uptown Optical Co., 801 Capitol.....	Carrier-Carrier	Off same system as Horwitz Theaters	

Photographers

Gittings, Inc., Lamar Hotel Bldg.....	Carrier-Straus-Frank	5.5	7
Roulande Studio, 4420 Main St.....	Airtemp-Way	3	3.33

Photographic Supply Companies

Chamberlains, 704 Main St.....	Carrier-Straus-Frank	6.5	8.5
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Restaurants

Brooks System Sandwich Shop, 1001 Main..	York-York	8.5	12.25
Brooks System Sandwich Shop, 907 Rusk..	Airtemp-Way	6	6.66
Brooks System Sandwich Shop, 4422 Main..	Carrier-Straus-Frank	6.5	8
Kelley's Cafe, 3512 Main St.....	Westinghouse-Cochran	15	18
Kelley's Cafe (Texas), 910 Texas.....	Westinghouse-Cochran	29	36
Port Houston Tourist Camp Cafe			
Beaumont Rd.	Westinghouse-Cochran	4.5	6
Thornhill's Cafe, 1820 Leeland.....	Perfection-Aire-Perfection	7.5	7.5
The Chef, 1310 Main St.....	Carrier-Straus-Frank	4.5	5.5
Slatten's Grill, 801 Travis.....	Carrier-Straus-Frank	12	17

Schools, Colleges, Universities

Rice Institute Biology Lab., South Main..	Frigidaire-Robisch'g-K.	.75	.75
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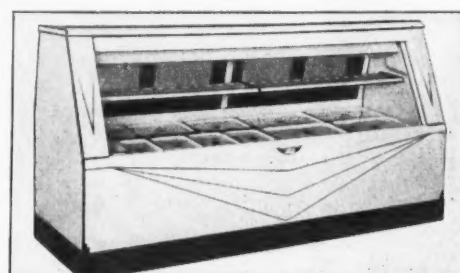
Shoe Stores

Florsheim Shoe Store Co., 702 Main St....	Carrier-Straus-Frank	3	3.75
Thom McAn Shoe Store, 512 Travis.....	York-York	5	6.5

(Concluded on Page 21, Column 1)

THE BUYER'S GUIDE

FOGEL PROUDLY PRESENTS



1938 LINE OF COMPLETE FOOD MARKET EQUIPMENT:
Display Cases, Walk-in Coolers, Vegetable Display Cases, Reach-In Boxes for Restaurants, Hotels, and Bakers.
• Streamlined Beauty
• World's Highest Quality
• Genuine Porcelain Interior and Exterior—(No Imitation Finishes Used)
• Assured Lifetime Vision
• Competitively Priced
• Liberal Dealer's Discount
• Financing Plan for Dealers
• Over 40 Years of Experience
WRITE IMMEDIATELY FOR FULL DETAILS
FOGEL REFRIGERATOR CO.
16th & Vine Sts., Philadelphia, Pa.

TYLER WELDED STEEL REFRIGERATORS



A COMPLETE NEW LINE FOR 1938

Fastest selling line ever offered to the trade. Completely covers the field. Face-setting values in Top Display and Double Duty Cases—6, 8, 10 and 12 foot lengths... Two shelf cases... Delicatessen cases... Reach-In Boxes... Walk-In Coolers. All streamlined with striking modern beauty and engineered with latest improvements.

With this new Tyler line of commercial refrigerators you can step out ahead of all competition. Write today for free literature and attractive dealer proposition.

TYLER FIXTURE CORP. Dept. R, NILES, MICH.
NEW YORK OFFICE, 801 W. 20th St. CHICAGO OFFICE, 1933 W. Ogden Ave.

New As Tomorrow

and just what the live distributor has been waiting for.

A Reach-In of lifetime 18-8 Enduro Stainless Steel.

A variety of models and sizes.

Style—Quality—Beauty—Endurance.

An article in demand by the quality buyer.

An Amazingly low price.

A worth-while direct factory discount.

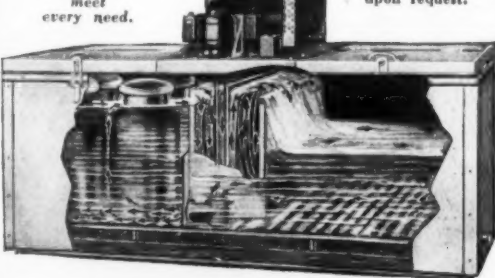
Write

BROMANN BROS., Inc.
Fulton & Peoria Sts. Chicago, Illinois

Designed and Built to Do a Better Milk-Cooling Job

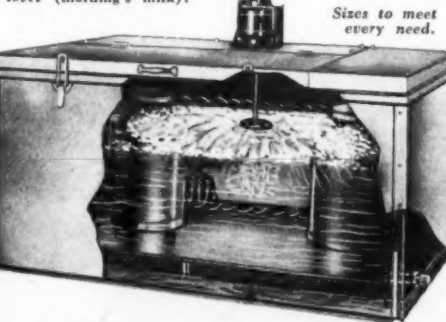
ZERO-FLOW

as numerous tests have proved, is the most rapid milk cooler ever designed for the dairy farmer. From body heat to 50° F. in 45 minutes is usual. Five notable features account for this quicker milk cooling: greater cooling area; continuous flow of water downward and upward over cooling coils; constant neck-high water level selectively, in either can compartment, regardless of number of cans; complete automatic circulation; more effective insulation and an almost air-tight fit when top is clamped down. Numerous other features are fully described in new sales manual which will be sent to you upon request.



COLD-WHIRL

Coolers provide unusually fast and uniform cooling by spraying ice-cold water over necks of cans with low water level (night's milk) and by agitation at a high water level (morning's milk).



SEND for full particulars regarding the complete WILSON line: Zero-Flow, Cold-Whirl, Verti-Coil, Walk-In, "Dry and Wet Storage".

GOOD territories available. Write for attractive dealer proposition.

WILSON CABINET CORP., Smyrna, Del.

1937 Houston, Texas Installations (Cont.)

(Concluded from Page 20, Column 5)

Name and Address	Equipment and Installer	Tons	Hp.
Theaters			
St. Elmo Theater, 711 West Dallas.....	Airtemp-Way	50	60
Blue Bonnet Theater, 1015 Broadway.....	Airtemp-Way	60	77.5

Trunk Stores

Houston Trunk Factory, 727 Main St.....	Carrier-Straus-Frank	15	20
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Residences

Dr. Donaly C. Barton, 1004 Shadder Way..	G-E-Air Cond. Co.	5	8.5
Ben Wolfman, Warwick Hotel.....	Carrier-Straus-Frank	1.6	1.5
Roy Kiesling, 2514 Wichita.....	Frigidaire-Robisch'g-K.	6	7.5
C. C. Perry, 2214 South Blvd.....	Frigidaire-Robisch'g-K.	.75	.75
A. B. Bath, 609 Avondale.....	Kelvinator-Straus-Bod.	1	1
J. O. Mock, 1907 West McKinney.....	Kelvinator-Straus-Bod.	1	1
W. B. Sharp, 2402 Crawford.....	G-E-Air Cond. Co.	12.5	16
W. B. Sharp, 2402 Crawford.....	Carrier-Straus-Frank	.8	.75
George R. Brown, 3363 Inwood.....	Carrier-Straus-Frank	6.5	8
Ernest Langston, 2517 Inwood.....	Carrier-Straus-Frank	5	6
R. F. Taylor, 1734 West Alabama.....	Carrier-Straus-Frank	.8	.75
S. P. Parish, 2995 Lazy Lane.....	Carrier-Straus-Frank	20	24
Harry Susman, 415 West Gray.....	Carrier-Straus-Frank	4	4.5
Maurice Hirsch, 415 West Gray.....	Carrier-Straus-Frank	4	4.5
Dave Ritchie, 3424 Wichita.....	Carrier-Straus-Frank	.8	.75
Mrs. Underwood Nazro, 5700 Main St.....	Carrier-Straus-Frank	1.6	1.5
R. D. Straus, 1814 Larchmont.....	Carrier-Straus-Frank	5	6
E. A. Showers, 3207 Inwood.....	Carrier-Straus-Frank	6	8
Joseph H. Burt, 1635 West Alabama.....	Kelvinator-Straus-Bod.	1	1
George Ratcliffe, Lamar Hotel.....	Carrier-Straus-Frank	.8	.75
E. M. Smith, Lamar Hotel.....	Carrier-Straus-Frank	.8	.75
Harry L. Edwards, 5316 Cherokee.....	Carrier-Straus-Frank	.8	.75
A. H. Black, 1121 West Alabama.....	Airtemp-Way	3	3.33
Carl Myer, 1114 Pearson.....	Cool-Aire-Perfection	.75	.75
J. E. Burt, 4812 Delano.....	Kelvinator-Straus-Bod.	1	1
J. R. Suman, 4817 Montrose.....	Carrier-Straus-Frank	1.6	1.5
R. E. Paine, 1505 McKinney.....	Carrier-Straus-Frank	.8	.75
River Oaks Corp., 2127 Buffalo Dr.....	Airtemp-Way	6	6.66
Kelvin Home, 1821 Sharp Pl.....	Kelvinator-Straus-Bod.	1.5	1.5
J. R. Payne, 4715 Caroline.....	Westinghouse-Cochran	.75	.75
W. H. McClelland, 2010 Travis.....	Kelvinator-W. W. Short	1	1
E. G. Colgin, 2008 Ruth.....	Bennett-International	.75	.75
Mrs. Aubrey Smith, Warwick Hotel.....	Carrier-Straus-Frank	.8	.75
Newman Jones, 108 Alton.....	Cool-Aire-Perfection	.75	.75
C. H. Matthews, 123 Park Pl., G. V.....	G-E-Air Cond. Co.	1	1
L. H. Thompson, 2220 Brazos.....	Bennett-South Texas	.75	.75
Dr. J. E. Mayo, 2805 Blodgett.....	Bennett-South Texas	.5	.5
E. Calvert Smith, 535 Lovett Blvd.....	York-Star	.83	1
Miss Seawillow Long, 3410 Burlington.....	Carrier-Straus-Frank	2.5	3
H. J. Porter, 1558 Kirby Dr.....	Carrier-Straus-Frank	6.5	7.5
B. S. Horton, 1728 North Blvd.....	Carrier-Straus-Frank	.8	.75
R. E. Smith, 1620 Haver.....	Carrier-Straus-Frank	.8	.75
E. K. Nold, 423 Hathaway.....	Airtemp-Way	.75	.75
L. M. Robertson, 3348 Southmore.....	Carraway-Burd-Perfection	7.5	7.5
Paul Kayser, 3260 Del Monte.....	Airtemp-Way	3	3.5
Chas. Eidson, 2142 Chilton.....	Airtemp-Way	1	1.03
Dan Moran, 3382 Del Monte.....	Airtemp-Way	3	3.33
Clem Best, 702 East 19th.....	Cool-Aire-Perfection	.87	.75
F. H. Roberts, 3308 Parkwood.....	Cool-Aire-Perfection	1	1
W. K. Morrow, 3000 Calumet.....	Carrier-Straus-Frank	.8	.75
Mrs. Gordon West, 5214 San Jacinto.....	Carrier-Straus-Frank	.8	.75
George Echols, 1740 South Blvd.....	Carrier-Straus-Frank	.8	.75
L. J. Bland, 3235 Lock Lane.....	Carrier-Straus-Frank	.8	.75
J. A. Kiesling, 1602 Stuart.....	Frigidaire-Robisch'g-K.	5	5.5
Dudley C. Sharp, Post Oak Rd.....	G-E-Air Cond. Co.	5	7.66
E. S. Hamilton, 1904 Wentworth.....	G-E-Air Cond. Co.	1	1
S. R. Bertram, Jr., 2616 Calumet.....	G-E-Air Cond. Co.	2	2
Dr. James H. Park, Jr., 4807 Caroline.....	York-Star	.75	.75
W. P. Hamblen, 2116 Fannin.....	York-Star	.83	1
H. O. Clarke, Jr., 1324 North Blvd.....	G-E-Air Cond. Co.	.75	.75
Dr. Thomas Freundlich, 419 Avondale.....	Kelvinator-Straus-Bod.	1	1
J. C. Hurley, 2201 Southmore.....	Carrier-Straus-Frank	6.5	8
I. Simon, 1 West 11th Pl.....	Kelvinator-Straus-Bod.	1.5	1.5
I. W. Bartholomew, 1914 Esperanza.....	Mills-Zerozone Houston	.75	.75
W. St. John Garwood, 6 Shadowlawn.....	G-E-Air Cond. Co.	1	1
Names Withheld.....	York-Star	9	9
Names Withheld.....	Cool-Aire-Perfection	3	3
Names Withheld.....	Carrier-Straus-Frank	5.5	8.5

GALVESTON DIVISION

Drug Stores

Central Drug Store, 2116 Ave. E.....	G-E-Hancock & Co.	8	9.5
Walgreen Drug Store, U. S. Nat'l Bk. Bldg.	Baker-Silkens & Co.	20	26
J. Levy & Bros., 2128 Avenue J.....	Frigidaire-Silkens	6	5.75

Funeral Homes

J. Levy & Bros., 2128 Avenue J.....	Frigidaire-Silkens	6	5.75
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Hospitals

John Sealy Hospital, 816 Avenue B.....	York-York	15	16.5
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Men's Clothing Stores

E. S. Levy & Co., 2227 Avenue E.....	Carrier-Fred Hartel	25	33
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Offices

American Indemnity Co., 2328 Avenue B...	Frigidaire-Silkens	26	29.5
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Optometrists

Galveston Optical Co., 2224 Avenue E.....	Pacific-South Texas	.5	.5
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Residences

John W. Lockhart, 1502 Avenue H.....	Frigidaire-Silkens	1.5	1.5
John W. Lockhart, Down Island.....	Frigidaire-Silkens	3	3
Mace Stewart, 1120 23rd St.....	Frigidaire-Silkens	.75	.75
Mace Stewart, Down Island.....	Frigidaire-Silkens	3	3
Edwin Warwick.....	Carrier-Straus-Frank	.8	.75

Restaurants

Island Cafe, 509 21st St.....	Carrier-Fred Hartel	11.5	17
New England Cafeteria, 2313 Avenue D....	Frigidaire-Silkens	13.5	18

Theaters

New Martini Theater, 2028 Avenue F.....	Frigidaire-Silkens	96	125.5
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New Room Cooler
Featured By Use
Of Aerated Water

HOUSTON, Tex.—A new type portable air-conditioning unit, said to be capable of cooling a six-room house, has been placed on the market by the Purair Mfg. Co. here.

Known as Purair, the device is the invention of August Honerkamp and Benjamin B. Walton. Mr. Honerkamp is president of Purair Mfg. Co. A patent on the machine has been applied for.

Two sizes of the machine will be manufactured, the regular size cabinet being 30 inches wide, 24 inches deep, and 72 inches high. This size, it is claimed, will condition the average sized home up to six rooms. Larger size will be designed for business offices, churches, auditoriums, and larger homes.

Price of the regular size machine has been set at \$358.50; the large size machine will sell for \$398.50.

Installation of the machine, it is claimed, is simple. All that need be done is to place the cabinet near an open window, close all other openings, and connect the electric cord to a wall outlet. No ducts need be built, no attic equipment is required, and no electrical connections or extra wiring is necessary.

For proper circulation of air in the space to be conditioned, the window near which the machine is to be placed should be opened about 18 inches, the manufacturer states. Then, in a distant room, another window, or possibly two, should be raised to a height of about 6 inches.

By turning the regulator, the machine operates at any one of four speeds, and is said to give a simultaneously controlled supply of temperature, humidity movement, and pure air within the home or office.

Air is drawn into the conditioner, washed free of dirt, dust, and other impurities, humidified through aerated water, cooled, and circulated through the conditioned space.

The Purair machine carries a year's guarantee against defects in parts or workmanship.

The unit can be converted into a year-around system by addition of a heating unit which the company manufactures, it is claimed. Cost of the heating unit is \$50.

Rutgers University Is
Offering Home-Study
Oil Burner Course

NEW BRUNSWICK, N. J.—To round out its home-study courses in the field of heating and ventilating, Rutgers university now is offering a course in oil burner engineering comprising 15 lesson assignments.

Subjects studied in the new course include the operation, construction, and other principles of the oil burner; automatic control devices; calculation of heating systems; oil-fuel tests; calculation of heating requirements; heat loss calculations; fans and blowers; and insulation.

The course is offered by the university extension division of Rutgers, and is intended for service men, salesmen, mechanics, electricians, and engineers.

Other related courses already instituted by the university are heating and ventilating, consisting of 16 assignments, and air conditioning, consisting of 14 assignments.

Warning Note On 'Easy Money' Conditions
Sounded By Credit Men's Association

NEW YORK CITY—A warning that easy-money conditions can develop uneasy business conditions was made by Henry H. Heimann, executive manager of the National Association of Credit Men, before the credit management division of the recent annual convention of department stores here.

"It is important for business men to remember," the credit executive declared, "that easy-money conditions are not necessarily entirely beneficial. This is especially true with respect to small business. Frequently, easy-money conditions widen the gap between small and large businesses."

"First, easy money is not entirely reflected in the rates for small business, because facilities for reaching small firms are not as flexible. Thus their interest rates tend to remain more static."

"Second, small business usually cannot obtain long-term capital on an amortized basis as readily as large industry."

"Third, small business pays a penalty for the existing easy-money conditions by reason of the advantages given to the larger units."

"These adverse effects of easy money are also felt by the average man and woman who receive decreased earnings on their insurance and savings bank investments, this decrease arising to a large degree from money rates that are held at a low level, often by artificial means."

Mr. Heimann pointed out that "the only agreement among many people, with respect to the present business recession, is this: the underlying factors of business are reasonably sound. We do not now have, after the past fall's let-down, the serious situation that confronted us in 1930 following the collapse in the autumn of 1929. As a consequence, few expect this recession to be prolonged beyond the fall of this year."

"The question is: 'How best can we insure a resumption of business and, consequently, of employment in the shortest possible time?'"

"I am one of those who believe that when underlying conditions are reasonably sound, as they are today, the answer inevitably must be: (1) allow normal forces to restore business health; (2) guard vigilantly against any emergency measures or economic panaceas that prevent the normal forces from functioning in their usual restorative manner."

"Too many cooks spoil the broth; too many plans, schemes, suggestions, conferences, keep the recession on the front pages of our daily papers, and make matters appear worse than they really are."

"Let's give economic laws full opportunity to operate. Such a policy may well cause us less concern about recovery. And it is wrong to imply, as some do, that this must sacrifice the necessary and worthwhile social gains we have made."

THE BUYER'S GUIDE

8 EXCLUSIVE ENGINEERING FEATURES

ACE Hard Rubber "Loxit" Units (doors, rails, jambs) for refrigerated display cabinets offer eight outstanding advantages at no extra cost:

1. Locked-in, lift-out doors.
2. Tightly closed overlap.
3. Reduced air leakage.
4. Roller bearings.

5. Quiet closure.
6. Lighter weight.
7. Greater strength.
8. Shock absorbing jambs.

For details and prices write to: American Hard Rubber Co., 11 Mercer St., New York . . . 111 West Washington St., Chicago, Ill. . . Akron, Ohio.

ACE "LOXIT" PATENTED DOORS

CHIEFTAIN

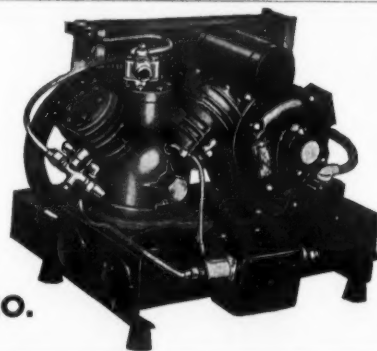
QUALITY-BUILT
COMPRESSORS and
CONDENSING UNITS

The CHIEFTAIN line represents precision manufacture and proven service, and is designed for all domestic and light commercial applications.

Sizes range 1/2 to 1/2 HP.

Write for prices.

TECUMSEH PRODUCTS CO.
TECUMSEH, MICH.



PIPE COILS

ACME GUARANTEES

All Steel Pipe Coils To Be Absolutely Free From Dirt And Free Scale

There is no additional charge for this special treatment.

Jackson

ACME INDUSTRIES, Inc. Michigan

Ranco COMPLETE LINE
OF
COMMERCIAL CONTROLS

BEVERAGE COOLERS . YES ! MILK COOLERS YES !
DISPLAY CASES YES ! WATER COOLERS . . . YES !
ICE CREAM CABINETS . YES ! WALK-IN COOLERS . . YES !

SEND FOR BULLETIN
FOR COMPLETE EXPORT INFORMATION, WRITE

RANCO INC., COLUMBUS, OHIO, U.S.A.

New Officers, Products Announced by Ebco

COLUMBUS, Ohio.—A. R. Benua heads the list of officers of the Ebco Mfg. Co. re-elected when stockholders held their annual meeting last week at the company's offices here. Other officers are Donald P. Hess, vice president and works manager; W. E. Benua, secretary, and Frank A. Benua, director.

The firm received contracts for water coolers from three nationally-known manufacturers of electric refrigerators, and has completed construction of a new warehouse that brings total floor space to 100,000 sq. ft., it was announced at the meeting.

Other products manufactured are dishwashing sinks in several models for table-top and cabinet installation, ice-water coolers, porcelain enameled drinking fountains, range closets, and metal compartments. The company also operates a foundry which produces castings.

Zimmerman Named Head Of Owens-Illinois Dept.

TOLEDO—W. P. Zimmerman, general factories manager of the industrial and structural products division of Owens-Illinois Glass Co. in charge of the Muncie, Ind., and Newark, Ohio, plants, has been promoted to the position of general manager of the division with his main office here.

In his new position, Mr. Zimmerman will coordinate manufacturing and sales, and generally supervise all operations of the division.

Tennille Furniture Co. Is Westinghouse Dealer

MONTGOMERY, Ala.—Frank Tennille Furniture Co. has taken on the Westinghouse appliance line. The company will continue to service all makes, according to John Andrews, manager of the firm's electrical department.

How Refrigeration Maintains Butter & Egg Prices Shown In Swift & Co. Report

CHICAGO—Refrigeration plays an important part in the maintenance of standard prices on eggs and butter throughout the year, it is pointed out in the section on refrigeration in the 1937 year book of Swift & Co.

Through refrigeration, it is possible to store surplus supplies of eggs and butter until the natural supply dwindles in the fall and winter months, and then release the stored products to the general market, thereby preventing the adoption by retailers of "scarcity prices."

Refrigeration also has made it possible to transport perishable foods from centers of production to consumer markets in industrial centers, the article states.

"Today," it continues, "the facilities for transporting perishable foods are so improved that producers in some of the far-western states are able to offer eggs in eastern markets of such high quality that they frequently command a premium over eggs that have been produced locally."

DISTRIBUTES SURPLUS

"Not only is refrigeration needed in the transportation of perishable foods from the centers of surplus production to the centers of consumption, but it is also needed to insure the even distribution of seasonal surpluses throughout the year."

"In the case of most perishable foods, there are periods of short production and periods of flush production within each year. For example, about half of the year's egg supply is produced in the months of March to June."

"The months of greatest output of butter are from May to August. Inasmuch as the consumer demand for eggs and butter is relatively constant from season to season, there are four months during the year when the supply coming on the market far exceeds the quantity required by consumers."

HOLDS MARKET FIRM

"By conserving a small portion of the year's production under refrigeration, it is possible for distributors to keep the flow of surplus products from demoralizing the egg and butter markets in the spring, and to prevent the exorbitant prices which would otherwise result from the short supply in the fall of the year."

"The significant fact in this connection is that only a little over one-tenth of the year's production of eggs and a somewhat smaller proportion of butter output needs to be carried under refrigeration from the producing to the consuming season. This is sufficient to insure the orderly marketing of the year's total production."

"The great bulk of the butter and egg supply is not held under refrigeration at all, but is marketed direct with the aid of refrigeration facilities."

HOW EGGS ARE KEPT

"Eggs that are carried under modern refrigeration are not put away and forgotten. On the contrary, the most careful controls are maintained upon the temperature, humidity, air circulation, odors, and every condition affecting the quality of product—controls which receive continuous day and night service, lest any of these essential conditions should vary."

"Quality in eggs, it is recognized in the industry, is not a question of the age of the egg so much as it is

a matter of the egg's original quality and the care used in handling it."

"March and April eggs which have been carried into the summer months under scientifically-controlled conditions are very often better eggs than those currently gathered, since hot weather and the tapering off of the laying season affect the average quality and condition of eggs gathered late in the summer."

BUTTER MARKETING

"The marketing of butter presents the same twofold problem that arises in the handling of eggs. The surplus production of the dairy regions must be moved under refrigeration to the great consuming sections; and furthermore, the surplus production of May to August in each year must be carried under low-temperature refrigeration into the later months when current production is less than consumer requirements."

"The surplus butter that is not needed for consumption during the months of flush production is kept at a temperature of about zero Fahrenheit, and is carefully protected from exposure to the air. At this temperature and under proper refrigeration the quality of butter can be held at a constant level until the season of short production arrives."

"Since consumer demand is fairly constant throughout the year, the stabilizing of the movement of eggs and butter into consumption does a great deal to reduce seasonal price fluctuations. While the results of such operations for any given year are highly uncertain, with losses almost as likely as profits, the price of the product rises on the average about enough to cover the costs of holding from the period of peak production until the later period of deficient production."

IMPORTANT SERVICE

"The temporary storing of eggs and butter yields an important economic service. Since these products can be held under refrigeration with almost no loss in quality, there is, during the spring period of surplus production, a market demand not based solely upon immediate consumption requirements."

"This demand holds the prices of all eggs and butter at a higher level than they would otherwise be. Similarly, supplies coming out of the warehouse in the late summer and fall tend to reduce the scarcity price which seasonal shortages would otherwise cause."

YEARLY CYCLE

"During the season when rising production becomes approximately equal to current consumption (March for eggs, and April for butter), total holdings, or carry-over, are very small, and the refrigeration facilities are ready to begin again their yearly cycle of service."

Accompanying the article is a double chart prepared by the U. S. Department of Agriculture showing the national production and consumption of eggs and butter by months. The figures are based on a 10-year average compiled from 1926 through 1935.

Beginning with approximately 5,075,000 cases in January, production of eggs mounts rapidly each month until April, when it reaches its peak of about 13,175,000 cases. From this point production steadily declines to a low point of approximately 3,575,000 cases in November. December production is slightly higher than that of November.

PEAK PERIODS

Consumption of eggs begins in January with about 6,425,000 cases, reaches a peak of about 9,025,000 cases in March, and gradually declines throughout the remainder of the year, dropping back to about 6,425,000 cases in December.

Production of eggs exceeds consumption in March, April, May, June, and July. During the other months of the year, consumption exceeds production.

In the case of butter, production exceeds consumption in May, June, July, and August; consumption is greater than production in the other eight months.

Production in January is about 112,000,000 lbs., dropping to about 105,000,000 in February and then

rapidly climbing to a peak of about 191,600,000 in June. In regular steps each month, except October in which the descent is checked, production descends to the year's low point of 100,000,000 lbs. in November, edging back up to about 108,000,000 in December.

Consumption rises and falls throughout the year. In January it is about 130,000,000 lbs. In February it is about 120,000,000, from which point it rises to 158,000,000 lbs. in May, the peak month. By July it has dropped again to 128,000,000 lbs., and alternately increases and decreases each of the remaining five months between 140,000,000 and 130,000,000 lbs.

Total production and consumption of eggs during a year each is approximately 88,000,000 cases. Respective totals of butter production and consumption approximate 1,625,000,000 lbs.

Staid Carnegie Hall Has Industrial Concert

NEW YORK CITY—The portals of Carnegie Hall, long accustomed to lilting lyrics and the symphonic strains of the world's best music, will be invaded on the night of March 2 by the crackling of a million volts of electricity shooting across the stage; by the transmittal of an assortment of sounds on a light beam, and by the frying of an ordinary egg on an ordinary newspaper.

Present for the occasion will be Charles F. Kettering, inventor and research executive of General Motors Corp., who will explain the purpose and background of the show. The performance, a presentation of "Previews of Progress," which has been developed in the research laboratories of General Motors, will be given for executives of the corporation and employees in the New York and New Jersey areas.

"Previews of Progress" is a traveling exposition designed to show how science and research have contributed to industry and to the advancement of American progress. Practical application of scientific discoveries and the part that science and research have played in the improvement of living conditions for everyone will be indicated through a series of dramatic demonstrations.

Touring the country in a huge streamlined truck, the exposition has just completed an eight-month journey through New England, where it was viewed by more than 250,000 persons. During the next three months, performances will be given free to the public in towns and communities in northern New Jersey.

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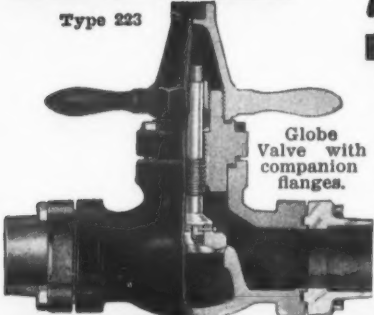
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HENRY

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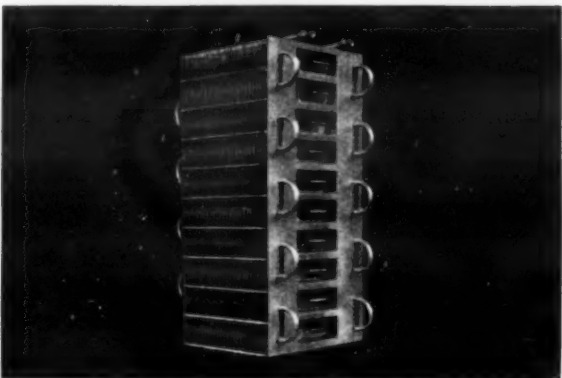
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PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

DISTRICT REPRESENTATIVE wanted for New England territory by manufacturer of most complete line of refrigeration coils, air conditioning and heating surface—liberal commission basis. Box 1022, Air Conditioning & Refrigeration News.

POSITIONS WANTED

MARRIED MAN, thirty, located in central New England, desires connections with growing concern, with chance for advancement. Ten years' experience with commercial refrigeration, air conditioning installation and service. Familiar with all applications. Can qualify for service representative. Working at present for large commercial refrigeration company. Available on brief notice. Box 1024, Air Conditioning & Refrigeration News.

FRANCHISES AVAILABLE

COMPLETE LINE of refrigerator display cases, walk-in coolers, and refrigerators for meat markets, grocers, restaurants, etc. Sell with Ehrlich line of compressors, or with any other line of machines. Attractive discounts, also liberal financing arrangements to help sell, 69 years in business. Write for full information and catalog. **EHRLICH REFRIGERATOR MFG. CO.**, St. Joseph, Mo.

EQUIPMENT FOR SALE

CLOSE-OUT BARGAINS on replacement parts for Mayflower commercial and domestic units as manufactured by Trupar. Subject to prior sale. Large stock of repairs for Brunner and "M. & E." commercial units for prompt deliveries. Phone or write to **SAM S. GLAUBER, INC.**, 515-529 E. 79th Street, New York City.

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CONTROLS REPAIRED. You profit by our ten years' experience, trained personnel, and precision equipment. Each control accurately calibrated and re-finished. Perfect work, prompt service, reliable guarantee. If it contains a bellows, Halco can repair it. Try Warren for stuck compressors. Samples available. **HALETRIC LABORATORY**, 1793 Lakeview Road, Cleveland, Ohio.

DOMESTIC CONTROLS repaired. Ranco pencil types \$1.75. General Electric, Cutler-Hammer, Tag, Penn, Ranco box types \$2.00. Bishop Babcock, Majestic, Penn magnetic types \$2.50. All calibrated to factory specifications. We pay return postage. **UNITED SPEEDOMETER REPAIR COMPANY**, 436 West 57th Street, New York City.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. **H. R. VAN DEVENTER (ASRE)**, Patent Attorney, 342 Madison Avenue, New York City.

MISCELLANEOUS

I WOULD like to buy some used mail order courses on air conditioning & refrigeration. They must be of the newer type correspondence course complete & no pages missing, as I want the complete course in good condition. State price & year of course. Reply immediately. Box 1019, Air Conditioning & Refrigeration News.

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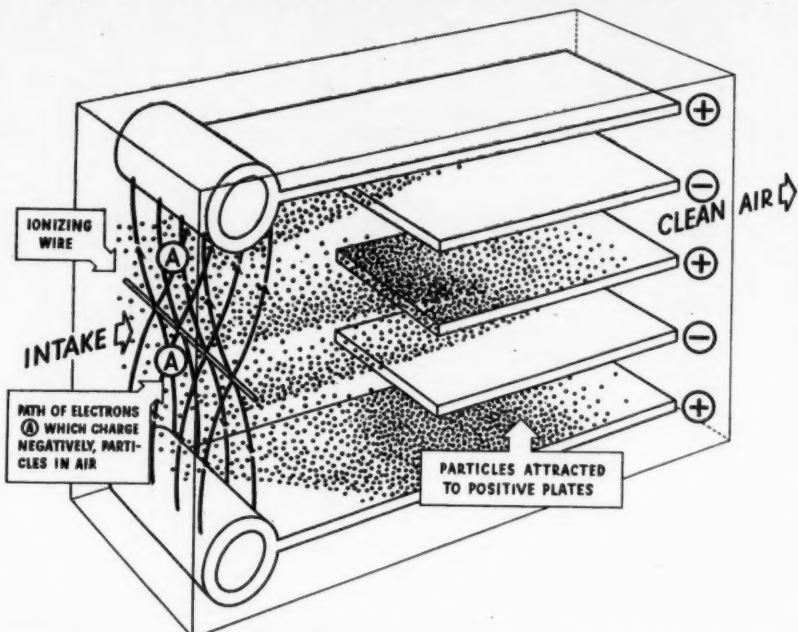
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How the Precipitron Cleans Air



Dust-filled air, normal atmosphere, is drawn past an ionizing wire which emits a stream of electrons. Particles suspended in the air, passing through the electron stream, are charged negatively and then, as they pass through the unit, the charged particles are drawn out of the air to the positively charged plates where they cling as the cleaned air passes on.

Westinghouse Electric Air Cleaner To Be Made Available In Size Suitable For Home Use

NEW YORK CITY—Production of the "Precipitron," Westinghouse Electric & Mfg. Co.'s new electric air cleaner, as a packaged unit for household use costing about \$500 was announced by H. M. Wilcox, manager of the Westinghouse new products division, at a press preview last week at the Engineers club here, during which a demonstration of the new unit was given.

First commercial application of the Precipitron is in the new Woolworth retail store at 39th St. and Fifth Ave. W. W. Turner, chief engineer for the Woolworth company, said that with the Precipitron it is expected the resultant savings in paint and cleaner merchandise will more than offset the \$2,000 annual operating cost at the Woolworth store.

In this pioneer installation, all air in the store passes through the Precipitron, which removes 99% by weight of all particles in the atmosphere, it is claimed. The unit is said to pick up particles as small as four-millionths of an inch in diameter.

The package unit for home use is expected to be ready next fall. It is designed for heating plants using the hot air system, thus eliminating the necessity for extra ductwork to distribute cleaned air. First installations

for testing the mechanical and merchandising qualities of the home Precipitron will be made in Pittsburgh, Mr. Wilcox said.

The Precipitron is built on the principle of magnetic attraction. In the cleaning process the air is first bombarded by ions—minute electrical charges—emitted by wires as fine as human hairs which carry a charge of 12,000 volts.

The ions attach themselves to the particles in the air, thus giving them an electrical charge. Next the treated air is drawn through a series of coils consisting of alternately spaced high-potential and grounded plates.

By charging the high-potential plates at 5,000 volts, an electrical field is established. As the treated air passes through these cells, the charged particles adhere to the plates and the air now cleansed of all solid matter passes on through ducts that lead to the rooms being served by the equipment.

A million cubic feet of air can be cleaned by the Precipitron at a power cost of one cent, it is claimed.

The device also is said to aid in relief of hay fever, asthma, types of sinus ailments, and other respiratory afflictions. It is highly effective in removing bacteria from the air, according to laboratory tests.

Worthington Introduces Gas Engine Line

HARRISON, N. J.—Worthington Pump & Machinery Corp. has announced publication of an eight-page bulletin, S-550-B4C, describing the line of vertical, four-cycle, type AG gas engines which it manufactures for use wherever natural, manufactured, sewage, or refinery gas is available.

Designed to produce power for electric generating, air and gas compressor drive, oil field pumping, refrigeration and ice plants, irrigation, and mills, the AG engines have valve-in-head construction, total enclosure of all moving parts, removable cylinder liners, separate water-cooled cylinder heads, and force-feed lubrication.

The new bulletin gives complete specifications and typical installation views.

Boston A.S.R.E. Hears About Fishing, Sailing

BOSTON—Sailing and fishing were the topics of the guest speakers at a meeting of the Boston section of the American Society of Refrigerating Engineers held Feb. 25 at Walker Memorial, Massachusetts Institute of Technology.

Walter C. Wood, instructor of sailing at the Nautical Association of M.I.T., spoke on "Sailing as a Sport." "Fishing Trawlers" was the title of the talk given by George A. Colley, of John Alden, Marine Architects. Both talks were illustrated by colored motion pictures.

Bar Stock Valves For Big Systems Announced By Crane Co.

CHICAGO—Three new bar stock valves, so called because their bodies and bonnets are made from solid bar stock, have been introduced by Crane Co.

These small 3,000-lb. W.O.G. plug-type disc, globe, and angle valves are suggested for use as connections on orifice meters, regulator leads, bypasses, gauges, for use as expansion valves on ammonia lines, and for any similar purpose where accurate regulation of flow is desired or where parts of measuring instruments must be protected against the sudden release of high pressure.

All of these valves are available in either steel, Exelloy, or 18-8 chrome nickel alloy, and all may be packed when wide open and under pressure.

The Exelloy valves are particularly suited, according to the company, for handling oil or gas containing sulphur compounds or for installations where steel valves do not have sufficient resistance to atmospheric corrosion.

The 18-8 alloy valves are especially suited for oil and gasoline containing hydrogen sulphide or sulphur dioxide when moisture is apt to be present.

The new globe valve, No. 222½, is made with male and female ends in sizes from ½ to ¾-inch inclusive. Sizes ½ inch and 1 inch also are being added to the existing Crane line of bar stock valves known as Nos. 222 and 223.

Fones Bros. Host To Arkansas Dealers

LITTLE ROCK, Ark.—Westinghouse dealers from throughout Arkansas attended a sales meeting held in Hotel Marion recently by Fones Bros. Hardware Co., distributor, during which 1938 products and sales plans were introduced by executives of the Southwest district office of Westinghouse Electric & Mfg. Co.

J. B. Mooney, advertising and sales promotion manager, was in charge of the meeting. Other representatives from the Dallas office were J. F. Cox, range supervisor; Tom Martin, supervisor; A. D. Peabody, supervisor, and Ruth Van, home economist.

Connelly Co. Moves Portland Quarters

PORTLAND, Ore.—F. B. Connelly Co., Norge distributor in this territory, has moved to larger quarters at 835 N. W. Flanders St. The new four-floor building is more than twice the size of Connelly's former establishment here.

Dents Opens Branch Store

WAYCROSS, Ga.—Dents Furniture Co., Leonard dealer in Augusta, Ga., has opened a new branch store here with Henry B. Dugas as manager. The company also operates a branch store in Midville, Ga.

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NEW SERVICE VALVE KIT FOR HERMETIC UNITS

... for purging, charging and testing

THIS KIT contains a special valve with adapters and keys for use on hermetically sealed condensing units for purging, charging, testing, etc. It eliminates the need for having a number of different service valves for use with the various makes of such equipment.

Eight different adapters are supplied for attaching the service valve to the different units, and 5 keys are supplied which will fit the different charging plugs found on these units, these plugs generally having recesses of various sizes and shapes. Adapters have numbers stamped on them for easy identification and label inside box shows which adapter to use on each machine.

The valve kit can be used with the following hermetic units: Bohn methyl chloride and sulphur dioxide; Coldspot; Frigidaire; General Electric; Gibson; Grunow Maestric; Servel; Television; Trukold; U.S. Radio; Westinghouse large and small.

Operation of this valve is simple.

After removing sealing cap or plug and gasket from hermetic unit, the proper adapter is screwed into its place, the proper key is fitted to the charging plug, and the service valve is attached to the adapter. The unit is then ready for purging, charging or testing. Operated by ordinary ¼" ratchet wrench.

The outfit, which in addition to the special valve includes 8 adapters, 5 keys and 4 gaskets, is furnished complete in a convenient, specially-fitted metal box.

No. 182-F Service Valve Kit for Hermetic Units. Dealers Price \$8.00 ea. Net

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